FEBRUARY 13, 1943

Railway Age

Founded in 1856

ON THE CHICAGO, BURLINGTON AND QUINCY, 7% OF THE LOCOMOTIVES MAKE 23% OF THE MILEAGE

McCARTNEY LIBRARY
GENEVA COLLEGE

"—on the Burlington Railroad where we make approximately three million locomotive miles per month, about 23 per cent of this mileage is made by a fleet of Modern Steam Locomotives which represent only 7 per cent of the total steam locomotives owned."

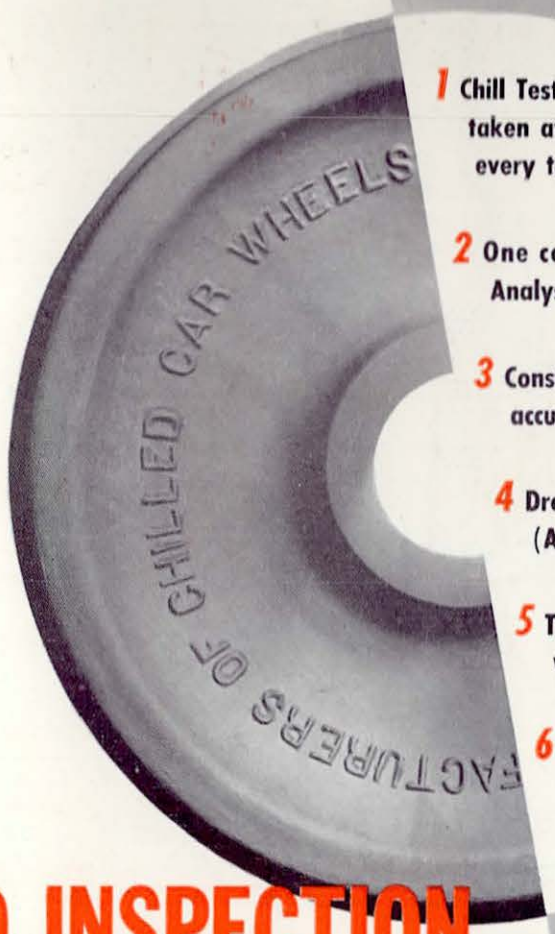
Note the 7% are Timken Bearing Equipped

The above quoted statement was made by a mechanical officer of the Chicago, Burlington and Quincy Railroad, at the Western Railway Club meeting held in Chicago on November 16, 1942, in regard to greatly increased availability of Steam Locomotives equipped with Timken Bearings. The "7% of the total steam locomotives owned" refers to 68 Timken Bearing Equipped locomotives of which 29 were originally built new on Timken Bearings and the remaining 39, originally built on friction bearings, were later changed over to Timken Bearings in the Burlington shops. The Timken Roller Bearing Company, Canton, Ohio.

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

RAILWAY ROLLER BEARINGS



1 Chill Test Block taken at least once in every ten wheels poured.

2 One complete Chemical Analysis Block with each heat.

3 Constant Pyrometer checks for accurate process temperature.

4 Drop Test of finished wheel (AAR specifications).

5 Thermal Test of finished wheel (AAR specifications).

6 Test for perfect rotundity.

RIGID INSPECTION

was Necessary to Establish the Phenomenal 1942 Railroad Record!

Rigid and regular inspection was necessary to handle the greatest volume of freight ever carried by the railroads.

Chilled Car Wheels aided in this inspection program because all chilled wheels are rigidly inspected and tested before delivery to the railroads.

Every Chilled Car Wheel is given the above six rigid tests in each of our 46 foundries, thus assuring absolute uniformity. Chilled Car Wheel inspection practices tie in with the rigid railroad inspection program and will again aid the railroads in their expanded 1943 inspection program.

3213

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

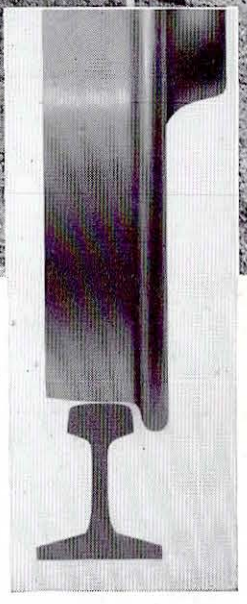
230 PARK AVENUE,
NEW YORK, N. Y.

445 N. SACRAMENTO BLVD.,
CHICAGO, ILL.

AMCCW

ORGANIZED TO ACHIEVE:
Uniform Specifications
Uniform Inspection
Uniform Product

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 114, No. 7.



War Traffic is Rolling

on Bethlehem Wheels

Improvements and advances in materials and equipment, adopted by America's railways as a result of far-seeing, long-range policies, have much to do with making possible the amazing job the railroads are doing today.

Installed steadily during the pre-war years, Bethlehem Wrought Steel Wheels are today helping leading railways to carry the heavy burdens of war-time haulage. These Bethlehem wheels are made from selected steel by a forging and rolling process that gives them great strength and toughness. They give longer service life and mileage, reduce time-out for repairs, and provide greater safety.

The strength and endurance of Bethlehem Wrought Steel Wheels made thousands of railroad cars better and more serviceable under conditions of normal, peace-time traffic. Now, while ton-mile totals mount almost from day to day, these same wheels are doing yeoman service for the nation's rail carriers in their job of handling the biggest volume of freight and passenger traffic in their history.

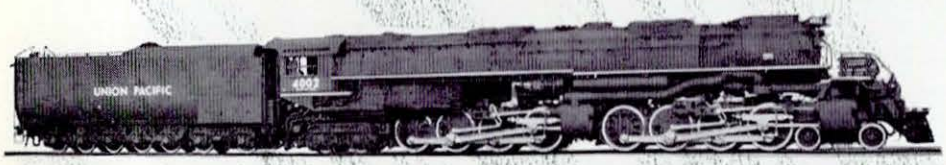
In handling war-time traffic the railways are placing dependence on many other tried-and-proved Bethlehem products, in addition to wrought-steel wheels. Forged Steel Axles, Alloy Steels, Rails, Track Equipment, Special Trackwork, Bolts and Nuts, Boiler and Firebox Plates, Steel Pipe, and other products of Bethlehem are likewise helping leading railroads to speed shipments of war materials.

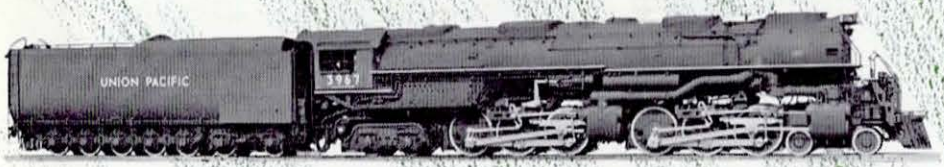
BETHLEHEM STEEL

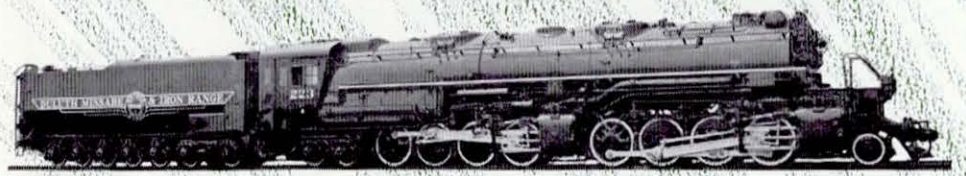
BETHLEHEM STEEL COMPANY

TO DO A BIG JOB BETTER—

MORE AND MORE RAILROADS ARE USING THIS

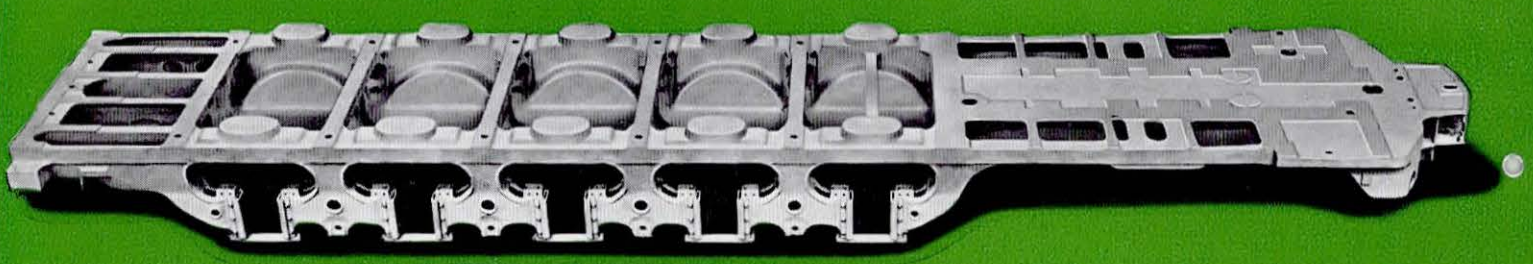






HIGH powered locomotives, longer runs and faster schedules make large capacity tenders essential—if revenue mileage is to be increased and the number of stops and delays reduced.

This new Tender arrangement with the COMMONWEALTH TENDER BED *permits increased water and fuel capacity* while keeping tender tanks within the clearance restrictions of right-of-way and terminals...weight of Tender is reduced...wheel loads are kept within



One-Piece Tender Bed

GENERAL STEEL

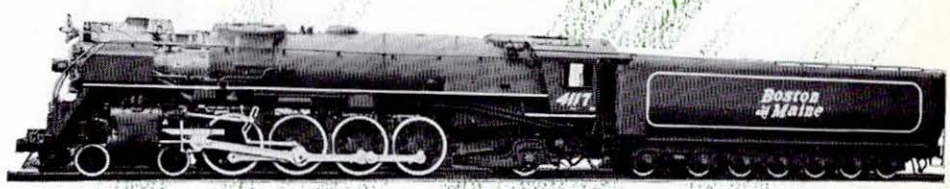
NEW TYPE TENDER

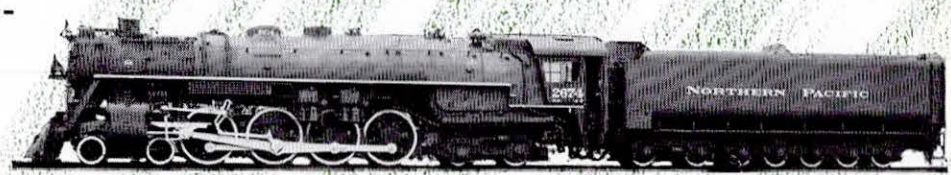
recommended practice...track stresses are reduced... increased mileage is obtained between wheel turnings.

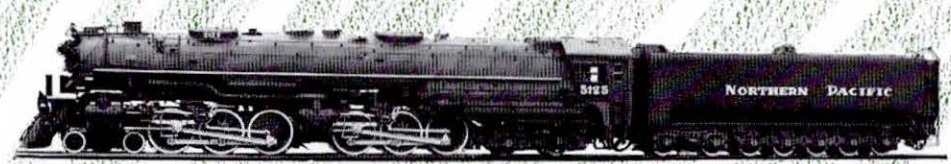
After several years of intensive service, comparisons prove that operating and maintenance costs are reduced and locomotive availability increased.

In service—or on order for these railroads

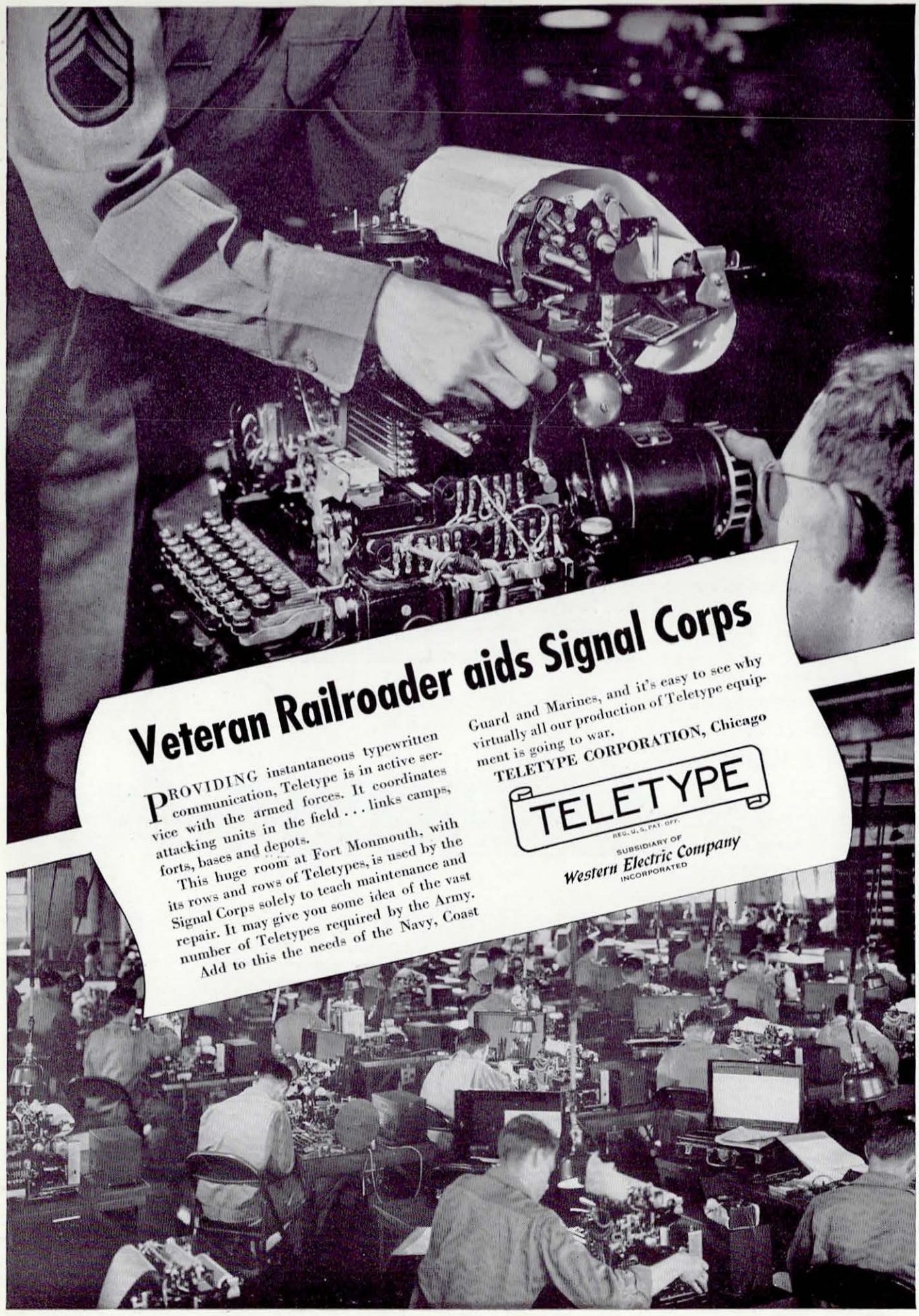
UNION PACIFIC
BOSTON & MAINE
D. M. & I. R.
NORTHERN PACIFIC
D. & R. G. W.
NEW YORK CENTRAL







CASTINGS EDDYSTONE, PA.
GRANITE CITY, ILL.



Veteran Railroader aids Signal Corps

PROVIDING instantaneous typewritten communication, Teletype is in active service with the armed forces. It coordinates attacking units in the field . . . links camps, forts, bases and depots.

This huge room at Fort Monmouth, with its rows and rows of Teletypes, is used by the Signal Corps solely to teach maintenance and repair. It may give you some idea of the vast number of Teletypes required by the Army. Add to this the needs of the Navy, Coast Guard and Marines, and it's easy to see why virtually all our production of Teletype equipment is going to war.

TELETYPE CORPORATION, Chicago

TELETYPE

REG. U. S. PAT. OFF.

SUBSIDIARY OF

Western Electric Company

INCORPORATED

LAVALLE JACKED UP HIS GRATES

Bill Lavalle's engine was smoothly hauling 130 empty cars "up the hill" from the Superior, Wisconsin, ore docks. He was bound for the Kelly Lake mines of Minnesota's celebrated Mesabi Iron Range, where most of our nation's iron ore comes from.

At Carlton, with no trouble in sight and all the crew happy, Bill's engine dropped the center bar of its grate frame. All sections of the grate promptly tumbled into the ash pan. So did the fire.

The veteran engineer shut off his throttle, set his brakes, whistled the rear brakeman out to protect the train, then inspected the wreckage.

Bill dumped fire, grates, and broken parts onto the ground, crawled into the stifling firebox with a jack he carried on his engine's tank, jockeyed the grate bars and frame back into position, and blocked it securely with the jack.

He forced the unbroken grates back into their places. He filled in the grate's gaps with the engine's re-railing frogs. He laid a coal fire on logs and old trees he found by the roadbed, got up a full head of steam, whistled in the rear brakeman, opened his throttle, and rolled on to the Kelly Lake mines.

At Kelly Lake, Bill pulled the pin on his train of empties, coupled onto a loaded ore train, and came back to the Superior docks without further repairs. Then he reported: "Delayed 8 hours and 10 min for a dropped grate bar."

Division Superintendent F. D. Kelsey wrote Bill as follows: "In this world—no matter what the job—it requires a master mind and a master hand to perform the job perfectly, like you do."

After 47 years on the iron range, Engineer Bill Lavalle still prizes this letter—dated back in 1916.

What Bill Lavalle says is: "When the Spanish-American War came, we weren't ready. But we got ready.

"When the first World War started, we weren't ready. But we got ready. Up in this iron country we learned to make a round trip to the Range, 210 miles, with a return load of 125 cars carrying 9375 tons of ore, in sixteen or even fourteen hours. But—

"In 1939, I hauled 180 empties from the Superior docks to Kelly Lake and brought back 180 cars carrying 16,300 tons of ore—in ten hours and forty-five minutes, with one locomotive!

"Right now, twelve engines will do what it took thirty-five to do during the first World War. The twelve modern locomotives on our road make twelve round trips each day.

"We can make the trip, either way, in three hours and thirty-five minutes if we have to.

"Don't tell *me* we won't win this war!"

—*The Trackwalker*

AMERICAN LOCOMOTIVE • GENERAL ELECTRIC

113-5-9500

It's Full Speed Ahead for

1943

BARCO PRODUCTS CONTRIBUTE TO RAILROADING EFFICIENCY

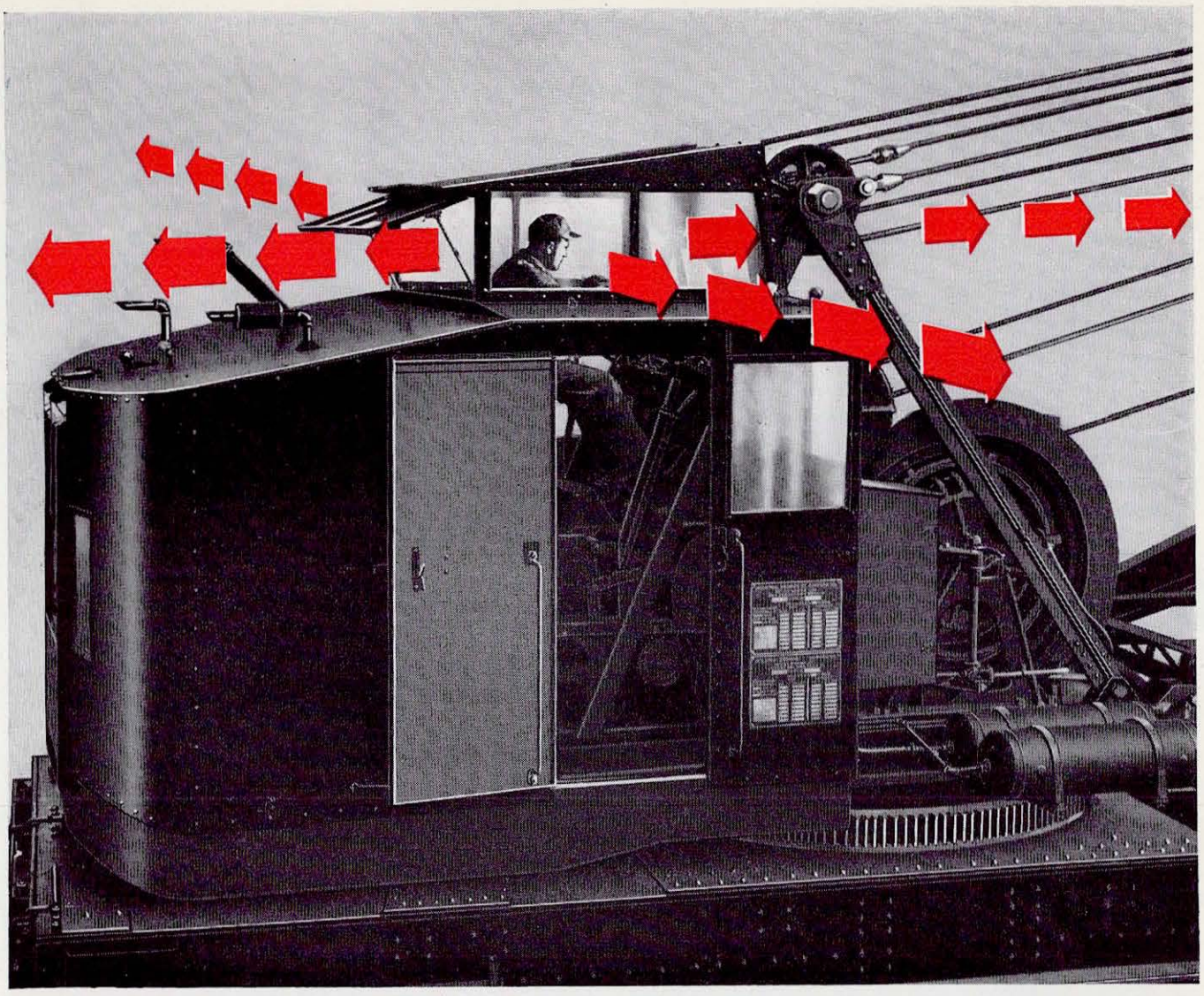
1943 will be an important year and every Barco resource will be helping the railroads achieve the hard task ahead. We are gratefully mindful of their recognition of the merits of Barco Products, in continuing year after year to make Barco Products FIRST CHOICE.

BARCO PRODUCTS

- BARCO Metallic Steam Heat Connections for air, steam, oil, water between engine and tender and articulated units.
- BARCO Joints provide flexibility between auxiliary devices and piping.
- BARCO Float Type Low Water Alarm.
- BARCO Type M Power Reverse Gears.
- BARCO Steam Heat Connections on rear of tender and between cars.
- BARCO Gasoline Operated Unit Tytampers and Hammers.

BARCO ALL METAL
ENGINE TENDER CONNECTIONS
FOR
STEAM · · · AIR
WATER · · · OIL
SAVE RUBBER

BARCO MANUFACTURING COMPANY
1800 W. Winnemac Ave. NOT INCORPORATED Chicago, Illinois
In Canada THE HOLDEN COMPANY, LTD.
Montreal – Moncton – Toronto – Winnipeg – Vancouver



You'd want to see in every direction, too, if you operated your company's cranes!

When you're swinging up to 40 tons of heavy material on the end of a fifty-foot crane-boom you want to see what you're doing. That's why the Monitor-type cab on I.B. Cranes is such an important factor in speeding up material handling. For the operator can see clearly in every direction. No blind spots cut off even a segment of his 360° range of vision. Besides visibility, the I.B. Monitor-type cab provides better ventilation, less noise, and less heat. Controls are conveniently placed for handy operation.

From the undercarriage to boom-tip Industrial Brownhoist Cranes are designed and built to increase production in material handling whether with magnet, hook or bucket. — Industrial Brownhoist Corporation, Bay City, Michigan. District Offices: New York, Philadelphia, Pittsburgh, Cleveland and Chicago.

INDUSTRIAL BROWNHOIST BUILDS BETTER CRANES

A New Contribution

TO INCREASED CROSSING SAFETY--

The BUDA Model 70

CROSSING GATE

ESPECIALLY designed to conform to railroad and state highway requirements governing safety, visibility, construction and operation, the new BUDA Model 70 crossing gate also features practical innovations in design which make it exceptionally easy and inexpensive to install and maintain. Check the following list of features—you'll find the Model 70 is truly the answer to most of your crossing gate problems!

Facts ABOUT THE MODEL 70 . . .

ADAPTABLE—can be mounted on any 4", 5" or 6" signal or flasher post—no expensive special foundation required!

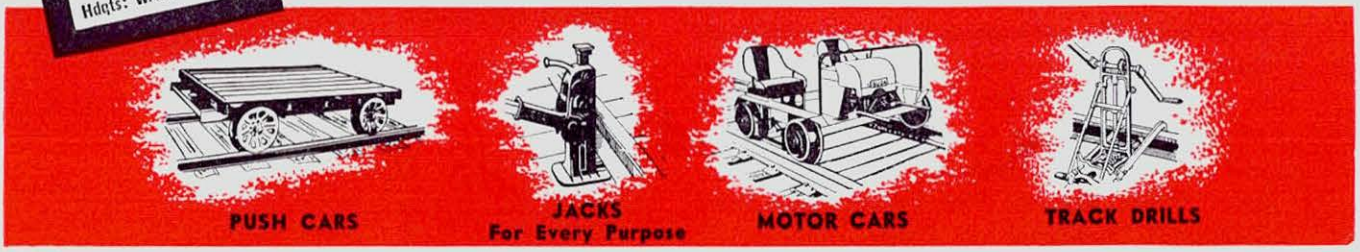
LONG-LIVED . . . Hydraulic dash-pot, adjustable to govern lowering speed, cushions arm lowering to prevent damage to gates and mechanism. Rugged cast-iron housing and arm plates; carburized nickel steel shafts, oversized gears, needle-type bearings—every construction detail designed and built for long, reliable service.

EASY TO INSPECT AND MAINTAIN. Provision is made for complete lubrication from the outside. Large hinged door opens to expose all parts of mechanism; motor is removable without disturbing gears, etc.; coils mounted on detachable plate for easy inspection.

SAFE, RELIABLE ELECTRIC OPERATION automatic or manual control. Only 1/200th watt used to hold gate in raised position . . . rugged, tamper-proof and weather-tight housing includes ample space for 14 additional circuits—permits full installation of interlocking switches.

Optional equipment such as swinging arm feature, power lowering, etc., available . . . write or wire for complete details.

THE BUDA CO. HARVEY (Chicago Suburb) ILLINOIS



ANOTHER UNSOLICITED TESTIMONIAL FOR RAILROAD PERFORMANCE

With every regular car and most of your once "out-of-service" equipment now hauling passengers, keeping war-riders rolling through to their destinations, safely and on time, is your number one war job.

But it's still possible to maintain in your old and new equipment a single high standard of *cleanliness* and passenger *comfort*. The mohair from which to weave Velmo and the necessary Chase looms to produce this transportation upholstery are available to you on priority orders.

Tap the Chase resources of skill and experience—built up in more than 60 years of "doing business" with the railroads—for help in working out an adequate war-time upholstery replacement and maintenance program.

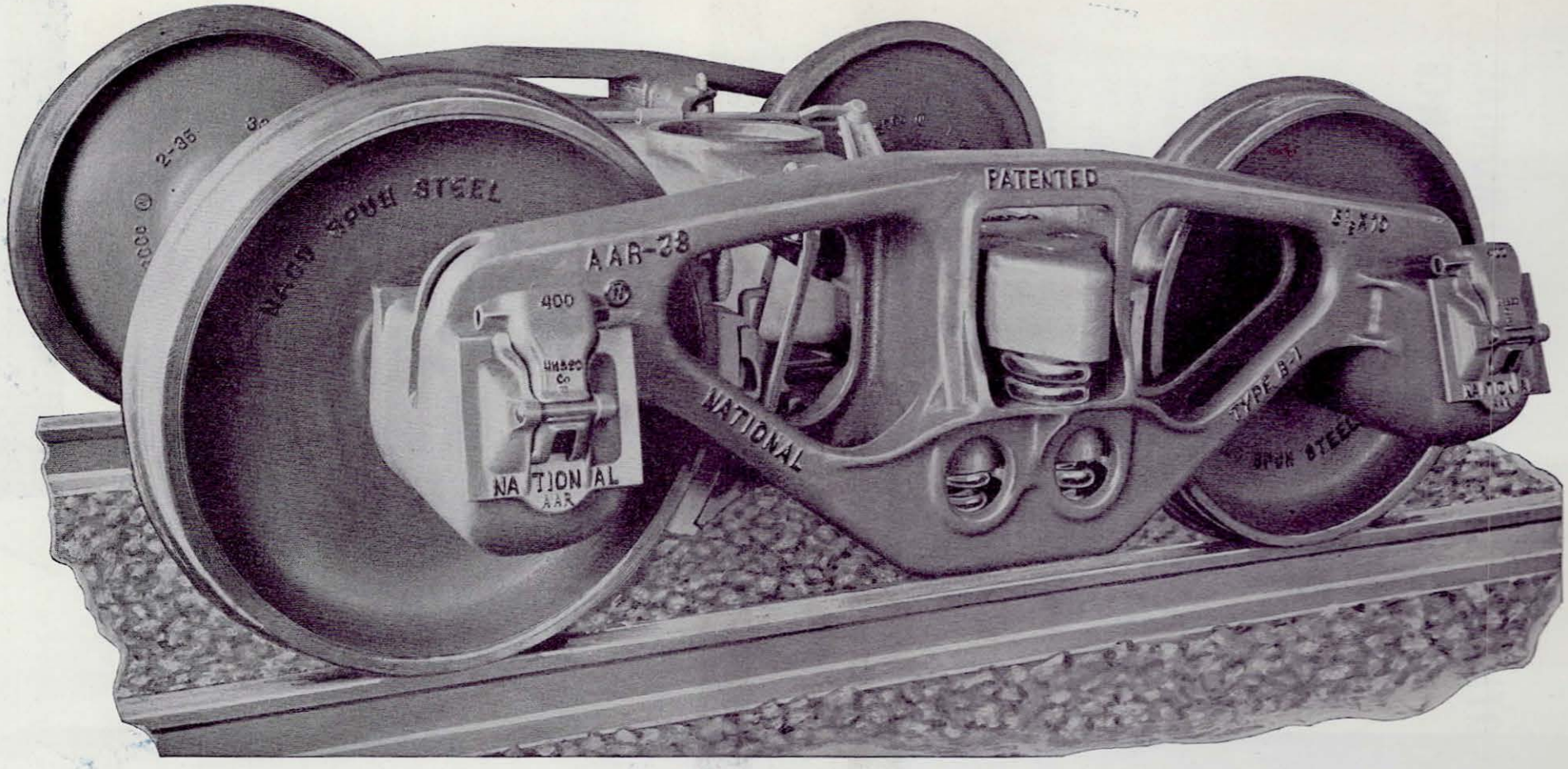
Our most important war job is to help you do yours.

CHASE

L. C. CHASE & COMPANY

295 FIFTH AVENUE, NEW YORK CITY

SALES DIVISION OF SANFORD MILLS. OFFICES, BOSTON, DETROIT, CHICAGO, LOS ANGELES



SMOOTHER RIDING and SAFETY at Higher Freight Speeds

NATIONAL MALLEABLE AND STEEL CASTINGS COMPANY
GENERAL OFFICES: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco ● Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.
Canadian Representatives, Railway & Power Engineering Corporation, Ltd., Toronto and Montreal

1. Combat team tactics, coordinating the efforts of tanks, infantry and planes, is an important part of the strategy of American Armed Forces. It was also used successfully by General Montgomery in driving Rommel out of Egypt. Teamwork on the largest scale ever conceived by man will win Victory for America and our Allies in the fight for Freedom.

2. A. C. Scott, Vice-President, Geo. F. Alger Co., Detroit, specializes in doing the "impossible." Alger hauled the bulk cement for the Ford Willow Run plant, new Wayne Airport, and other projects. Scott inaugurated 24-hour maintenance—intensive inspection and driver care calling for 100% teamwork between all departments in his "turn on the steam for Victory program."

TEAMWORK WINS! In the armed forces . . . and on the home front, too . . . it takes teamwork to win! Timken's new A.M. (Axle Maintenance) Program tells you how to team up with your operating and maintenance departments to save tires, brakes, axles to insure longer vehicle life, cut costs and save critical materials. Write us today for FREE A.M. aids or talk to a Timken Field Representative — there's nothing to buy.

ARMY E NAVY
For Production
"Well Done"

TIMKEN AXLES

THE TIMKEN-DETROIT AXLE COMPANY, DETROIT, MICHIGAN
WISCONSIN AXLE DIVISION, OSHKOSH, WISCONSIN

A CAPABLE SOURCE FOR *Car Builders'* STEEL FASTENERS

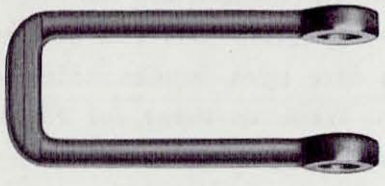
COLLAR RIVET BOLT

FLUSH HEAD FREIGHT CAR BOLT

AIR BRAKE PIN

COUPLER KNUCKLE PIN

WATERTIGHT BOLT



DROP FORGED BRAKE HANGER

BRAKE HANGAR PIN, ROUND, SQUARE OR FLAT HEAD

BUTTON HEAD MACHINE BOLT

COUNTERSUNK HEAD MACHINE BOLT

HEXAGON HEAD MACHINE BOLT

SQUARE HEAD MACHINE BOLT

CARRIAGE BOLT

RUNNING BOARD BOLT WITH LUGS

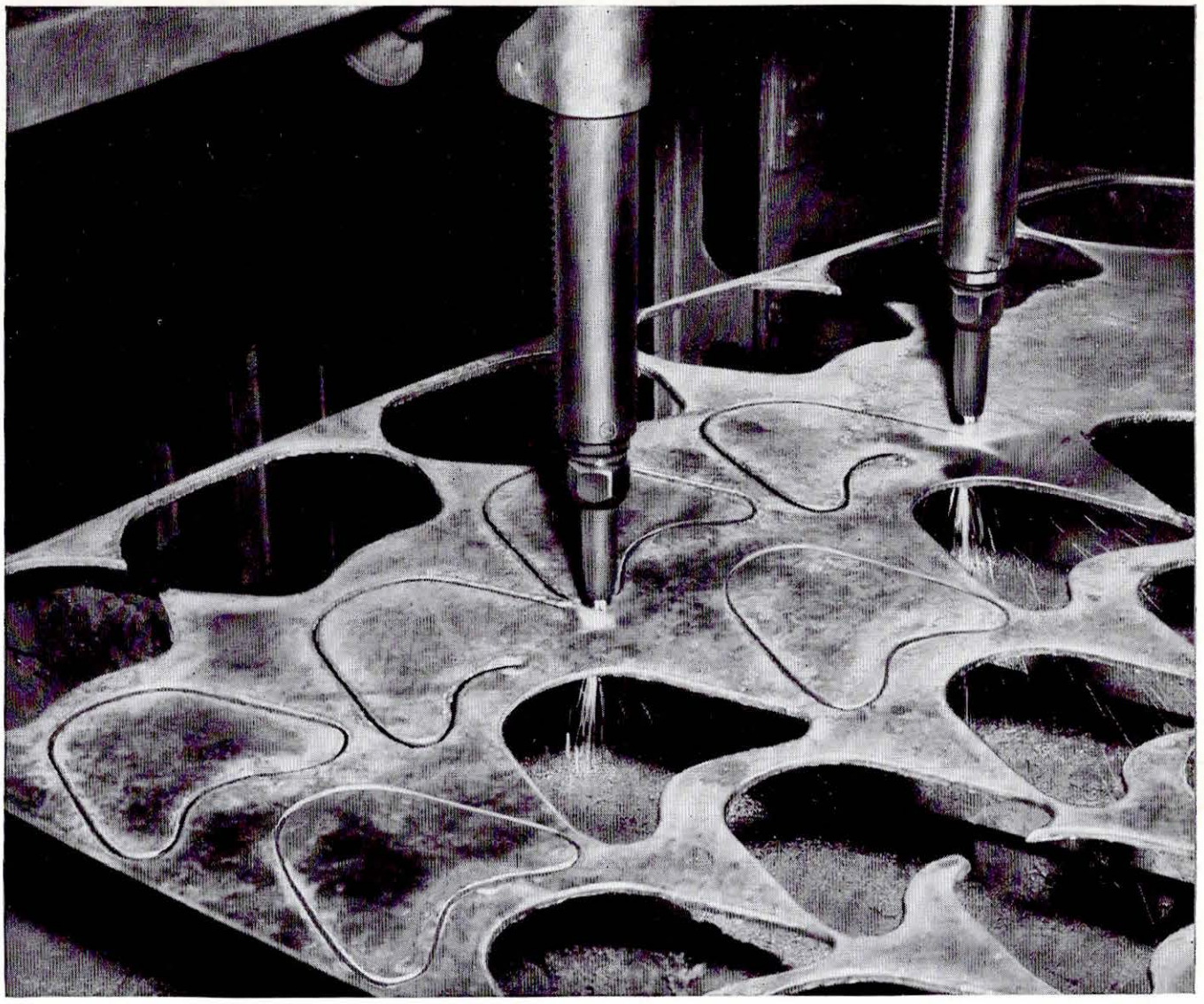
T-HEAD MACHINE BOLT

In addition to the Car Builders' fasteners shown here, the following items are available:

- RIVETS—ALL TYPES AND SIZES
- LAG BOLTS
- FITTING-UP BOLTS
- TAP BOLTS
- PLOW BOLTS
- TIMBER DRIVE SPIKE
- TUNNEL BOLT
- EYE BOLTS
- U BOLTS
- HOOK BOLTS
- BRIDGE AND ROOF RODS
- STAY BOLTS
- HIGH STRENGTH and CORROSION RESISTANT BOLTS

—as well as a complete line of TRACK ACCESSORIES and POLE LINE HARDWARE

OLIVER
IRON AND STEEL
Corporation
PITTSBURGH, PENNSYLVANIA



Multiple-Cutting Produces Parts Quickly
WITH MINIMUM SCRAP LOSS

● In the production of car and locomotive parts, oxy-acetylene shape-cutting results in substantial savings in time and materials. In some cases, it is most economical to cut tightly clamped piles of plate. In other cases, such as where the parts are relatively small, greatest savings result from multiple cutting, in which two or more blowpipes are mounted on the same Oxweld cutting machine, and are operated simultaneously from a common templet. Careful layout of work with nesting of the shapes to be cut helps to assure minimum scrap losses, as compared to fabrication of parts by other methods. In many cases, numerous needed parts can be produced by oxy-acetylene shape-cutting of steel salvaged in demolition programs carried on under Oxweld procedures.

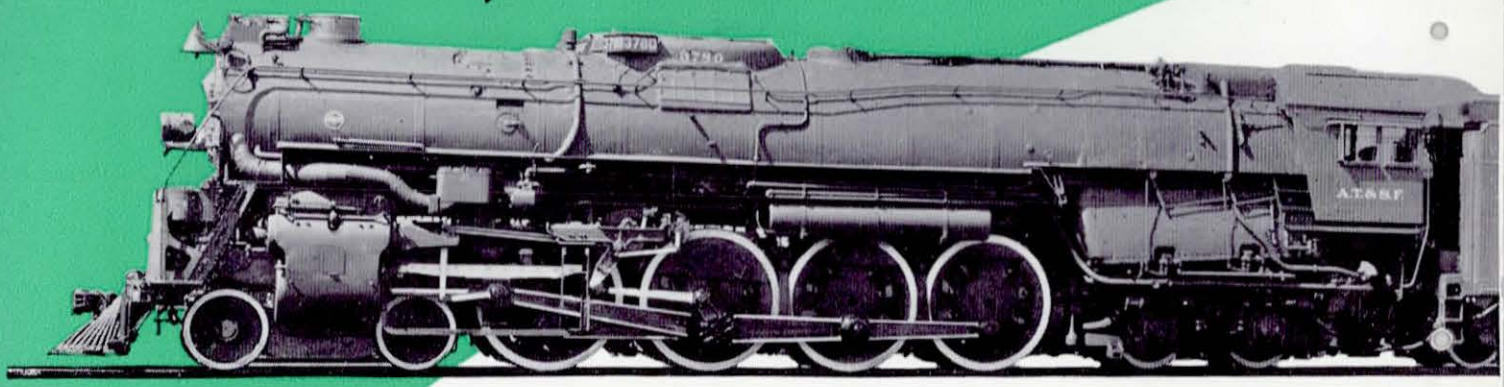
THE OXWELD RAILROAD SERVICE COMPANY
Unit of Union Carbide and Carbon Corporation
UCC
Carbide and Carbon Building — Chicago and New York

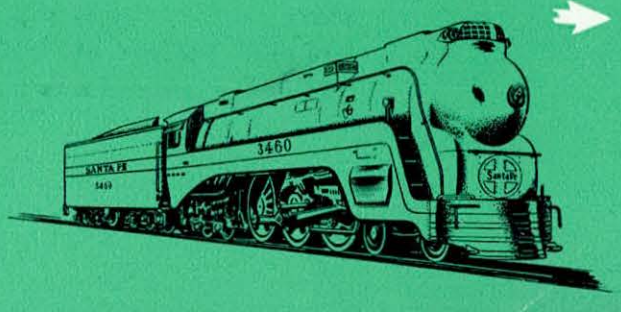
SINCE 1912—THE COMPLETE OXY-ACETYLENE SERVICE FOR AMERICAN RAILROADS

The word "Oxweld" is a registered trade-mark of a Unit of Union Carbide and Carbon Corporation.

It's Baldwin Modern

power





on the Santa Fe's 1,788-mile run

. . . from Kansas City

to Los Angeles

Up and down the lines of the Santa Fe, there are many troop camps, bases, and industries turning out war materiel. These have placed unprecedented demands on Santa Fe men and equipment, but this railroad is doing its job well.

Aiding the Santa Fe in this herculean task are many Baldwin Locomotives. Baldwin Steam Locomotives are used in passenger service on the 1,788-mile run between Kansas City and Los Angeles, one of the longest runs of its kind in America. The Santa Fe has other passenger runs ranging from 1,590 miles to 923 miles where steam power is used.

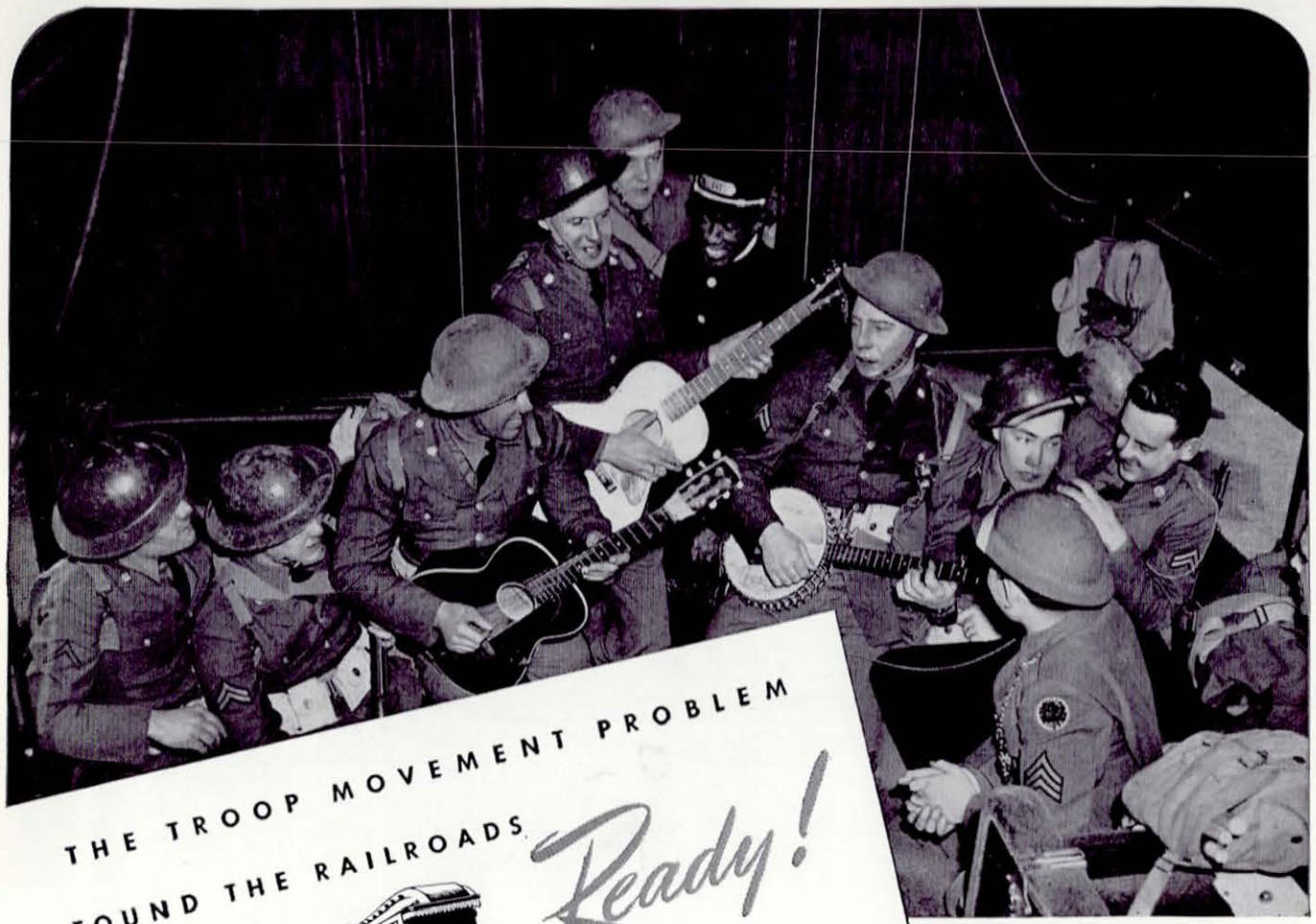
These extended runs have been made possible by the more efficient design of the modern steam locomotive, a development to which Baldwin engineering and manufacturing experience has contributed much.

Since 1831, Baldwin has built more than 64,000 locomotives. Today, modern Baldwin steam, electric and diesel-electric locomotives are demonstrating their value to a Nation at war—they are truly profitable investments. Baldwin today also serves the Nation as a builder of tanks, guns, gun-mounts, gun tubes and other war materiel.

THE BALDWIN GROUP

THE BALDWIN LOCOMOTIVE WORKS Philadelphia

BALDWIN SERVES THE NATION WHICH THE RAILROADS HELPED TO BUILD



Photo, Courtesy of The Pullman Company

THE TROOP MOVEMENT PROBLEM FOUND THE RAILROADS *Ready!*

When the railroads faced the task of moving more than eleven million men in 1942, new and reconditioned cars of a stronger but lighter-weight construction were already in use, prepared for hard service. Pre-war engineering had developed passenger coaches with interior partitions and doors of rigid light-weight Plymetl (see below). They have kept out of the shop and rolling, during a critical year, their low maintenance requirements conserving men and materials.

Another example of Haskelite's future-minded engineering is the Plymold process. This offers a structurally new molded plywood which can be processed in many forms. Veneers are laminated over easily fabricated dies of practically any necessary curvature, in small sizes, or in sections as large as a bomber fuselage. Now fully utilized for war purposes, it promises peacetime products of endless variety.

HASKELITE MANUFACTURING CORPORATION • 208 West Washington St., Chicago, Ill.
7310 Woodward Ave., Detroit, Mich. • 405 Lexington Ave., New York City

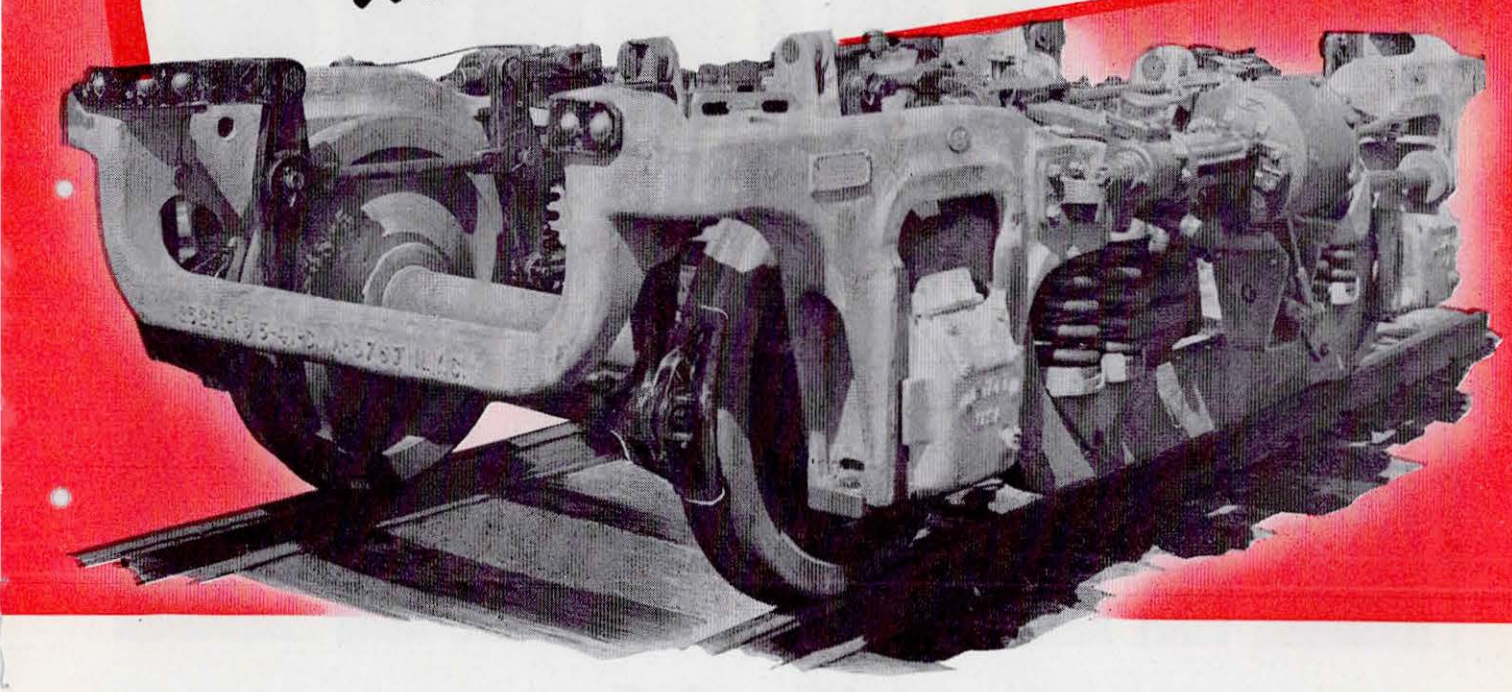
HASKELITE

PLYMOLD MARINE PLYWOOD AIRCRAFT PLYWOOD

Plymetl Metal-faced plywood, one or both sides.

Phemaloid

On the trucks of most streamliners...

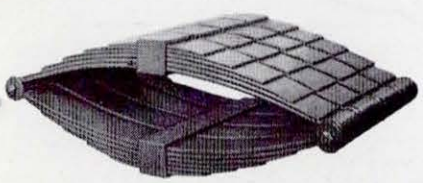


SIMPLEX Unit Cylinder CLASP BRAKES are helping to maintain the schedules of these modern trains.

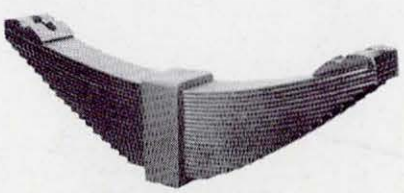
They are making it possible to effect quick, time-saving stops with safety, and with comfort to the passengers.

Simplex Clasp Brakes are in service on practically all the streamliners.

Simplex Unit Cylinder Clasp Brakes are equally effective under locomotives and tenders . . . in switching service they permit faster handling of yard movements.



Full elliptic springs



Semi-elliptic springs

Volute springs

Coil springs

Another A. S. F. product—Springs for passenger and freight equipment

AMERICAN STEEL FOUNDRIES

Chicago

AWARD

WE have a deep feeling of pride that the record of greatly augmented output of our product — used in equipping hundreds of war and defense projects — and the faithful cooperation of our employees merited the Army and Navy "E" Award. It inspires us with a deeper responsibility for continued accomplishment.

WEIR KILBY CORPORATION

Railway Track Work • Frogs • Switches • Crossings, etc.

CINCINNATI

January 13, 1943

When worn-out cars are replaced...

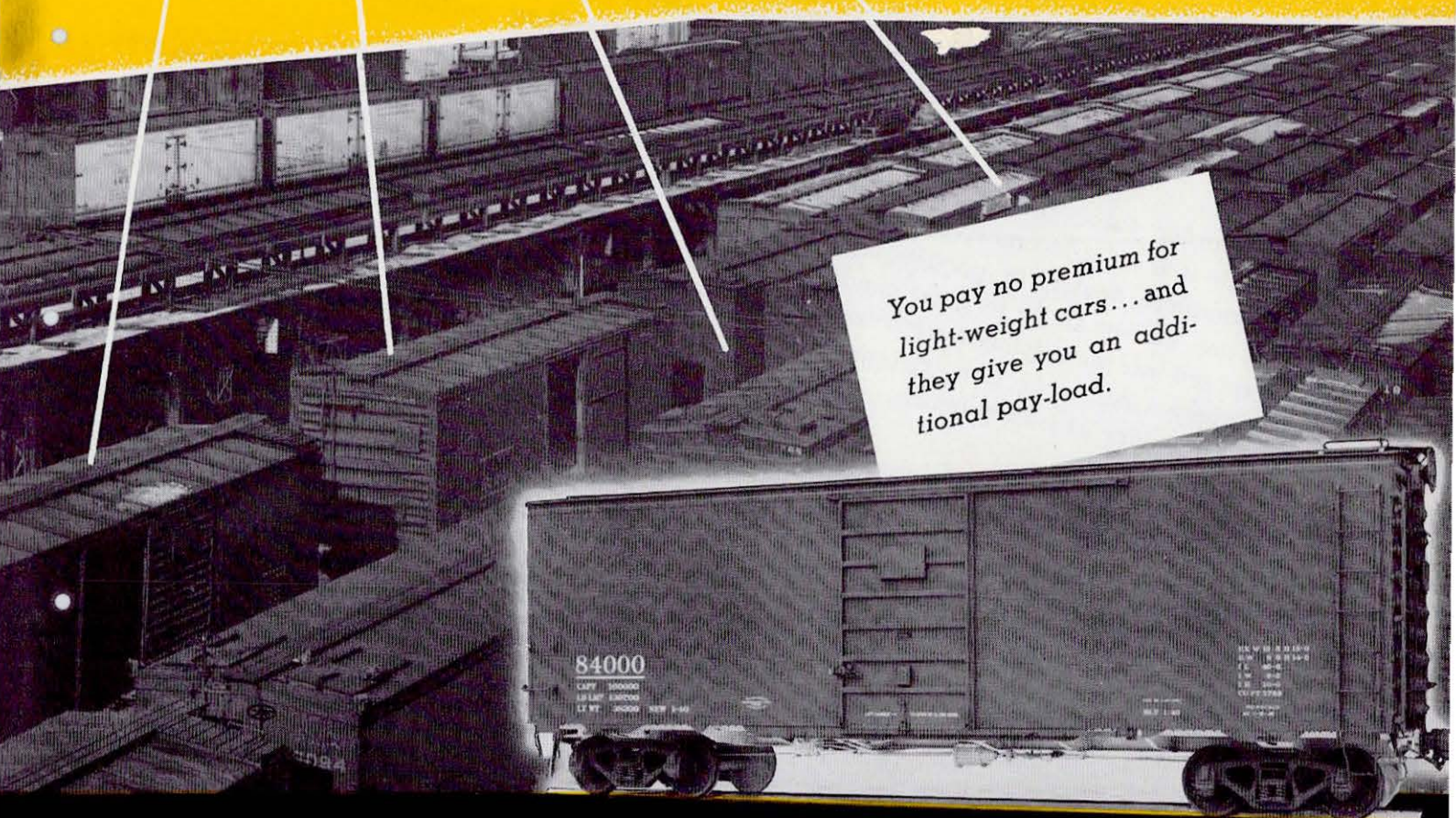
On the average, 93% of all freight cars have been kept in active service in 1942, as compared with 84% in 1929. Increasingly intensive service means that the railroads will come out of this war faced with the necessity of replacing much equipment that has been used up.

To replace worn-out cars with old-type designs would be contrary to the progressiveness of American railroads . . . particularly when the new light-weight freight cars have proved their economy.

The reduction of dead weight in these new cars as built by Pullman-Standard amounts to approximately four tons per car, with no decrease in strength.

These light-weight freight cars are decreasing operating costs and effecting savings that will become more and more apparent as the number in service increases.

When worn-out cars are replaced . . . light-weight equipment will be a factor in effecting the economies that will be required by competition.

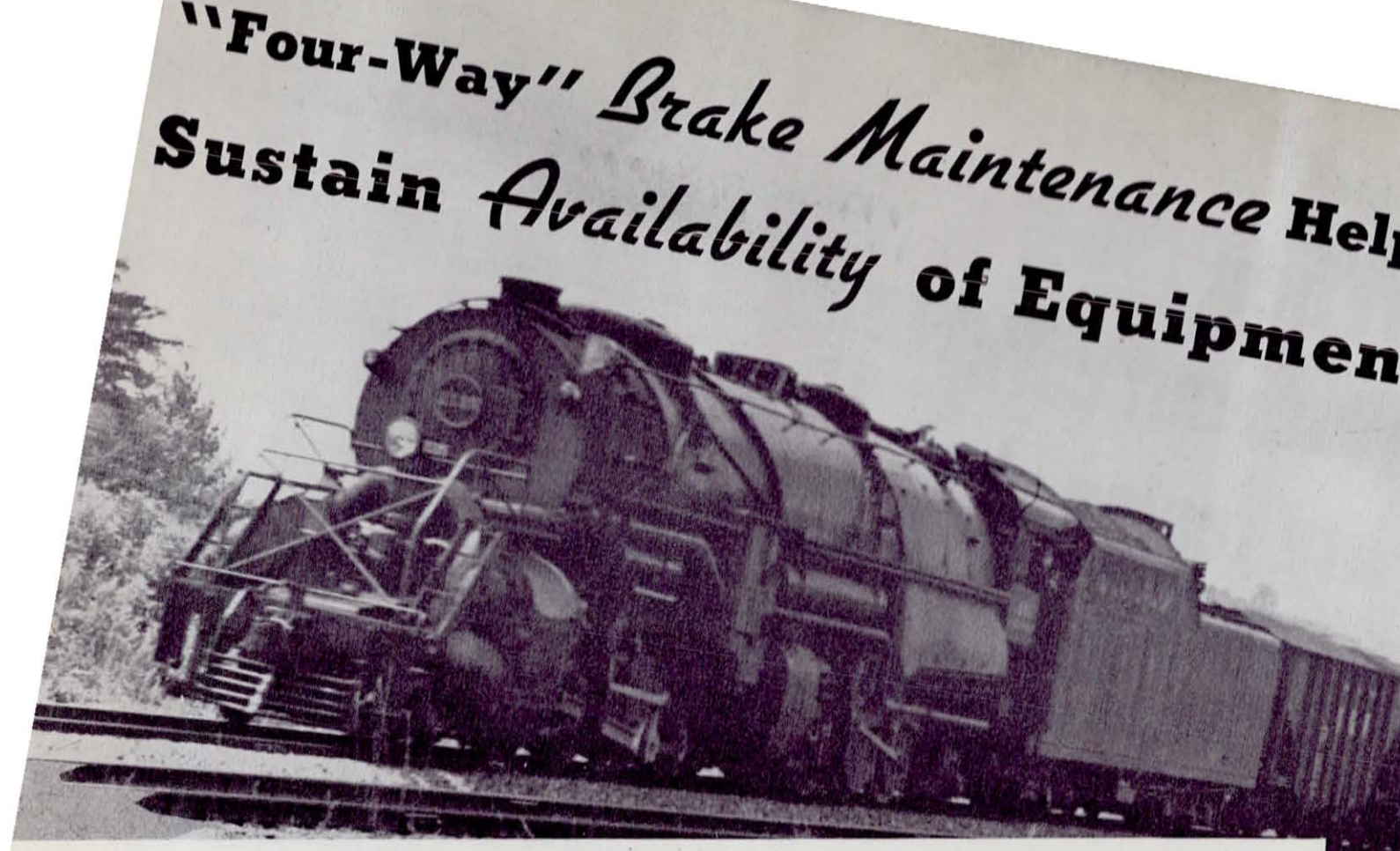


PULLMAN-STANDARD CAR MANUFACTURING CO.

CHICAGO · NEW YORK · CLEVELAND · WASHINGTON, D. C. · PITTSBURGH · BALTIMORE · BIRMINGHAM · WORCESTER, MASS.

San Francisco Sales Representative, Latham McMullin

"Four-Way" Brake Maintenance Help Sustain Availability of Equipmen



WARTIME transportation needs are imposing a gruelling service upon cars and locomotives. Availability of all railroad equipment is paramount. Volume traffic must move swiftly, surely . . . The function of air brakes in safeguarding and expediting vital freight is even more important today than ever before. As possible timely aids toward keeping them in good condition, the following reminders are offered.

1 An out-of-order valve should not be taken apart while it is on a locomotive or car. Remove the complete device, or portion, and replace with one known to be in good condition, keeping exposed internal surfaces protected from dirt and injury. All inspection, cleaning, and oiling should be done at a shop bench.

2 If minor replacements are necessary, it is sound practice to use "genuine" repair parts, which insure a first class maintenance job without extra machining or fitting. Time and labor are thus minimized, reliable service prolonged.

3 When a valve needs major repairs, let us do this work for you. We have adequate and proper facilities — skilled mechanics, improved methods, accurate machines and tools. Exacting standards in materials and workmanship are thus maintained, correct performance of reconditioned apparatus guaranteed.

4 Consult our field men freely concerning your problems of air brake operation and maintenance. They are eager to help you get the best service from your existing equipment on hard-working cars and locomotives.

ESTINGHOUSE AIR BRAKE CO.

WILMERDING - - PENNSYLVANI

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

Vol. 114 February 13, 1943 No. 7

PUBLISHED EACH SATURDAY BY THE SIMMONS-BOARDMAN PUBLISHING CORPORATION, 1309 NOBLE STREET, PHILADELPHIA, PA., WITH EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK, N. Y., AND 105 W. ADAMS STREET, CHICAGO, ILL.

WASHINGTON, D. C.: 1081 NATIONAL PRESS BUILDING. CLEVELAND: TERMINAL TOWER. SEATTLE: 1038 HENRY BUILDING. SAN FRANCISCO: 300 MONTGOMERY STREET, ROOMS 805-806. LOS ANGELES: 530 WEST 6th STREET.

SAMUEL O. DUNN, CHAIRMAN. HENRY LEE, PRESIDENT. ROY V. WRIGHT, VICE-PRESIDENT AND SECRETARY. F. H. THOMPSON, E. T. HOWSON, F. C. KOCH, R. E. THAYER, H. A. MORRISON, J. G. LYNE, VICE-PRESIDENTS. J. T. DeMOTT, TREASURER.

SAMUEL O. DUNN, EDITOR. ROY V. WRIGHT, MANAGING EDITOR. ELMER T. HOWSON, WESTERN EDITOR. JAMES G. LYNE, ASS'T TO EDITOR. C. B. PECK, ALFRED G. OEHLER. E. L. WOODWARD. J. H. DUNN. D. A. STEEL. R. A. DOSTER. H. C. WILCOX. NEAL D. HOWARD. CHARLES LAYNG. GEORGE E. BOYD. WALTER J. TAFT. M. H. DICK. JOHN S. VREELAND. ARTHUR J. McGINNIS. J. L. STOVER. C. B. TAVENNER. LIBRARIAN: EDITH C. STONE. EDITORIAL ASSISTANT: LOUISE MULLER.

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PAPERS (A. B. P.) AND AUDIT BUREAU OF CIRCULATIONS (A. B. C.).

SUBSCRIPTIONS, INCLUDING 52 REGULAR WEEKLY ISSUES, AND SPECIAL DAILY EDITIONS PUBLISHED FROM TIME TO TIME IN NEW YORK, OR IN PLACES OTHER THAN NEW YORK, PAYABLE IN ADVANCE AND POSTAGE FREE. UNITED STATES, U. S. POSSESSIONS AND CANADA: 1 YEAR, $6.00; 2 YEARS, $10.00; FOREIGN COUNTRIES, NOT INCLUDING DAILY EDITIONS: 1 YEAR, $8.00; 2 YEARS, $14.00. SINGLE COPIES, 25 CENTS EACH. H. E. McCANDLESS, CIRCULATION MANAGER, 30 CHURCH STREET, NEW YORK.

In This Issue

Page

Renewing Light Spans Strengthens Line for War-Time Traffic ***350***

A. R. Harris, Assistant Engineer of Bridges of the Chicago & North Western, tells how his road completed renewal of a bridge over the Mississippi river at Winona, Minn., on a heavy traffic line without interfering with trains.

Future Diesel-Locomotive Weights ***353***

The possibilities of small versus large engine-generator units and their probable effect on maintenance are discussed in this article by P. B. Jackson of the Aluminum Company of America.

War's End Won't Stop Train Travel ***359***

A discussion by Max Goodsill, General Passenger Agent of the Northern Pacific, on prospective post-war passenger traffic.

EDITORIALS

Protecting the Domestic Economy 347
Train Accidents in War Time 348
Manpower for Maintenance 348
Signal Performance 349
Railroads and Welding 349

GENERAL ARTICLES

Renewing Light Spans Strengthens Line for War-Time Traffic, by A. R. Harris 350
Future Diesel-Locomotive Weights, by P. B. Jackson 353
War's End Won't Stop Train Travel, by Max Goodsill 359
Ex Parte 148 Hearings Concluded 362

RAILROADS-IN-WAR NEWS **367**

GENERAL NEWS **371**

REVENUES AND EXPENSES OF RAILWAYS ... **386**

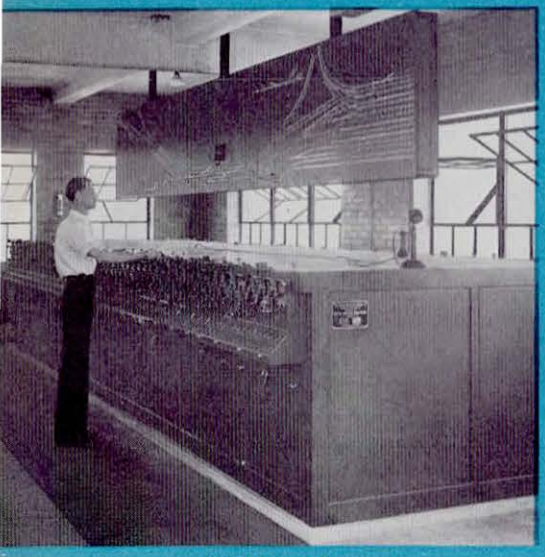
The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

PRINTED IN U. S. A.

More "Union" Interlockings Installed *to facilitate wartime transportation!*

IN the recent Annual Statistical and Outlook Number, *Railway Age* reports that more interlocking units, consisting of operative signal units, switches, etc., were installed during 1942 than in the previous year.

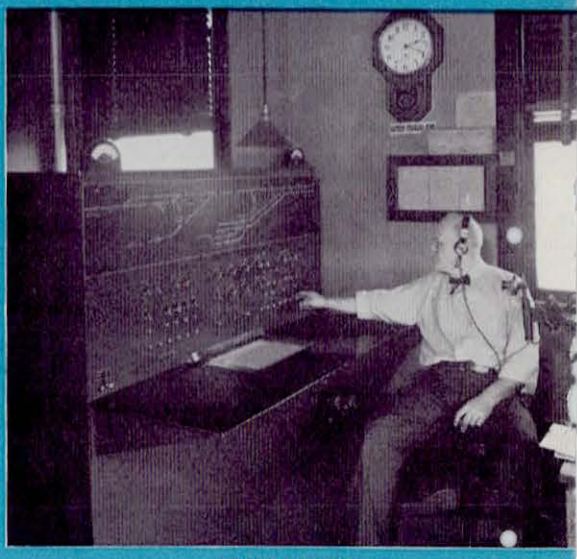
"Union" interlocking machines control 903 of the 1,379 units that are manually controlled. Of the units controlled by levers dependent upon mechanical locking, over 60 per cent are associated with "Union" interlocking machines. Nearly 70 per cent of the units, controlled by miniature levers or push buttons using circuit locking, operate in conjunction with "Union" interlocking machines. . . . These interlockings are vital aids in facilitating wartime transportation!



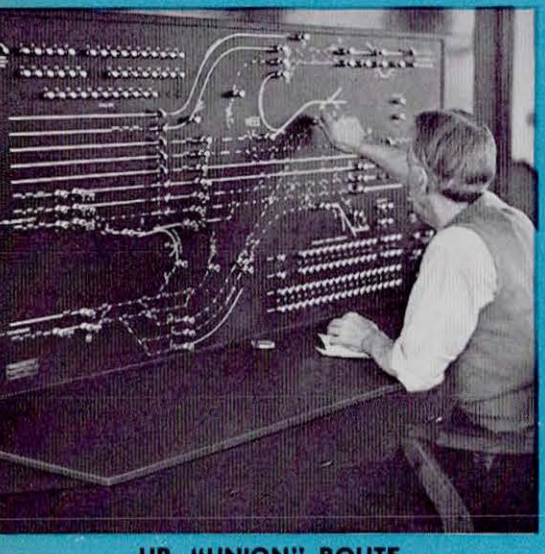
MODEL 14
Interlocking Machine

Model 14 power interlocking machines have met the tests of time and continue to be the most effective agency of control for a great many modern interlockings.

"Union" unit-lever type relay interlocking finds efficient application to both large and small layouts where functional separation calls for the methods of control using the minimum amount of wire.



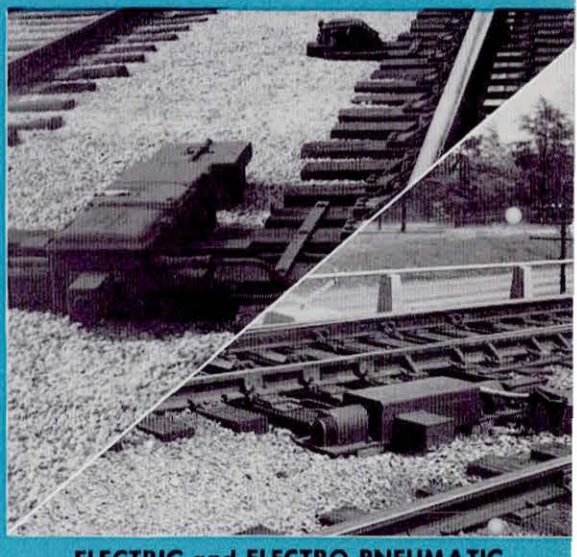
UNIT-LEVER
Relay Interlocking Machine



UR - "UNION" ROUTE
Relay Interlocking Machine

"Union" Route interlocking offers the greatest simplicity and speed of route control. When it is employed with electro-pneumatic switch and lock movements it provides for the fastest establishment of routes.

Each "Union" interlocking control system can be used with either the electric or the electro-pneumatic switch and lock movements.



ELECTRIC and ELECTRO-PNEUMATIC
Switch and Lock Movements

30

UNION SWITCH & SIGNAL COMPANY

SWISSVALE, PA.

NEW YORK · CHICAGO · ST. LOUIS · SAN FRANCISCO

The Week at a Glance

TRAINWOMEN ON THE PRR: On suburban trains operating out of Philadelphia the Pennsylvania has three women performing the duties of passenger brakemen, and a score more are making their student trips. Uniforms have been designed for them, to compare suitably with those worn by their occupational brethren. Ticket sellers of the gentler sex are too common a sight any longer to attract special attention on the P. R. R. and some other roads —and the gals have made their appearance as gatemen at Broad Street Station, Philadelphia; capable-looking mademoiselles they are, too.

●

BRIDGE FOR WAR LOADS: So modern locomotives can haul modern-size trains on a heavy-traffic line across the Mississippi at Winona, Minn., the North Western has replaced two light long spans in its bridge with six deck-plate girders. No temporary bridge was built, nor falsework used—and no interference was offered to traffic. How this interesting and advantageous job was done is related and illustrated elsewhere in this issue.

●

POST-WAR TRAVEL OUTLOOK: There are more sound reasons for optimism about post-war passenger traffic volume on the railroads than popular prejudice usually concedes—in the opinion of Max Goodsill, Northern Pacific general passenger agent, in an article published herein. The railroads—if they will leave the retail trade to agencies which are better fitted for it, and, instead, will concentrate on mass markets—can still haul people at much lower cost than their rivals; and, of course, far more safely. Railroad service is reasonably fast and can be made faster. It is comfortable and can be made more generally so. Add these advantages up in combination with a *much larger total travel demand* than ever existed before, and there is reason to believe that the railways can still count on hauling a large number of people.

●

NO PARLOR CARS IN CANADA: Parlor car service—largely patronized by government officials and dollar-a-year men —has been temporarily suspended in the Toronto-Ottawa-Montreal triangle by order of the Dominion's Transport Controller. Extra sections and sleepers have also been curtailed. The reason for the measure was bad weather and the difficulties of movement of fuel and other necessary supplies. Employee passes in the area have likewise been temporarily suspended. It is now planned to lift these restrictions by the end of the current month—neither the Dominion government nor the railways expecting that such drastic restrictions, or formal travel rationing, will be necessary for long duration.

●

1942 ACCIDENTS: I. C. C. statistics of 1942 accidents, summarized in the news pages herein, reveal that there was an increase of 3 per cent in total fatalities and of 27 per cent in injuries over the preceding year—a moderate rise in comparison to the increase in traffic. This record was assisted, however, by declines in casualties to trespassers and at grade crossings. There was an increase of 42 per cent in train accidents, of 25 per cent in employees killed on duty and of 39 per cent in employees injured—figures which indicate the necessity for maintenance and intensification of educational safety campaigns.

●

THE RATE CASE ISSUE: The itinerant peddler hawks his nostrums with generous superlatives—he won't be there when his magic digestive remedy has given grandpa a tumor. The OPA clamorously proclaims that its patent rate-reduction tonic will preserve, restore, perpetuate and fortify the war economy—which will be immediately, inevitably, irretrievably and calamitously sunk without it. The OPA can take no credit for the present health of transportation—without which the war could not go on; and it will suffer no pain if, a few months or years hence, transportation's vitality should fail from inadequate nourishment. Today's mushroom experts in the economics of transportation will, by that time, be vending some other facile expertness in another market. The rate case thus offers a simple choice between the counsel of life-long transportation men and that of a group of carpetbaggers whose irresponsibility for preserving adequate and economical transportation is surpassed only by their inexperience and ignorance of it.

●

INEPT ECONOMIC CZARDOM: The cost of present dependable transportation should be weighed against that of inadequate service, which poorly-nourished plant would inevitably render—*that* is what is at stake in the present rate case in the opinion of Ralph Budd, as reported herein. The same officialdom which gags at a year-old half-mill in the price of a ton-mile of transportation, on the lowest average rates in over 20 years, has this week decreed that a large number of employers must work their help an additional 8 hours per week—at time-and-a-half, thereby giving them 30 per cent more money for 20 per cent more hours of work. This order is the very essence of inflation—more "purchasing power," combined with goods at higher production costs. As the New York Times appropriately asks: What possible defense, "other than a cynically political one," can be made for the inconsistent and economically absurd behavior of these officeholders?

●

MODERN JURISPRUDENCE: In a concurring opinion in a Supreme Court decision ending the "assumption of risk" defense in liability cases, Justice Frankfurter has presented an argument "in favor of a system of workingmen's compensation not dependent upon negligence." By coincidence, it just so happens that such a recommendation is also a part of the broadened "social security" program which the Railroad Retirement Board has worked out with the kind advice of the railway unions.

LOCO IS A WAR TOOL: "The Locomotive Is a Munition of War"—such is the title of a poster issued by the British Ministry of Supply. The broadside goes on to proclaim that *"in certain circumstances the loco is more vital than the tank,"* that "its manufacture is a real war job," and that "every new locomotive made speeds victory." A supply of such posters might with salutary effect be judiciously distributed around the WPB. It wouldn't hurt, either, to expose a few in the corridors frequented by politicians so hot-air-minded and distraught with "globaloney" that they forget that planes cannot fly without supporting surface transportation.

●

1942's NET EARNINGS: The final figure for 1942 net railway operating income is given by the I. C. C. at approximately 1,481 millions—which yields a return on property investment calculated by the A. A. R. at 5.56 per cent—and represents an increase of 48 per cent over 1941. Net income was 960 millions, which may be compared with 1929's 899 millions.

●

WATKINS STILL AT IT: Ralph Watkins of the National Resources Board (whose views on the future control and financing of transportation were scrutinized at some length in our last week's issue) gave further expression to his advocacy of socialized transportation at a meeting of the Junior Traffic Club in Chicago last week. The learned doctor insists that government financing will be necessary because, he predicts, the timidity of private investors will persist. Meantime, the accuracy of his clairvoyance is being valiantly assisted by the doctor's New Deal colleagues in the OPA, who are doing their best to destroy the rate basis which has yielded the carriers their first year's approximation to a "fair return" since 1929.

●

BYRNES TO SCAN WAGES: The controversy over jurisdiction in the railway wage case has been settled by the President—an "emergency board panel" will hear the case, but its recommendations will be subject to review by Economic Director Byrnes. Judge Byrnes in a speech this week insisted that wage changes, except in isolated cases where there are persuasive special reasons for exceptions, will not be permitted to exceed the "Little Steel formula."

●

TO THE MEDIATION BOARD: Ex-Senator Schwartz of Wyoming and Dr. William Leiserson have got the two vacant places on the National Mediation Board, and so that body ceases to be a one-man committee. Mr. Schwartz succeeds Otto Beyer—who has been on leave from his NMB post, while serving as transport personnel director in the ODT, and who has now resigned his NMB job. Dr. Leiserson has been on the NMB before, but had absented himself for a turn with the National Labor Relations Board and, more recently, to head the newly-created Railway Labor Panel.

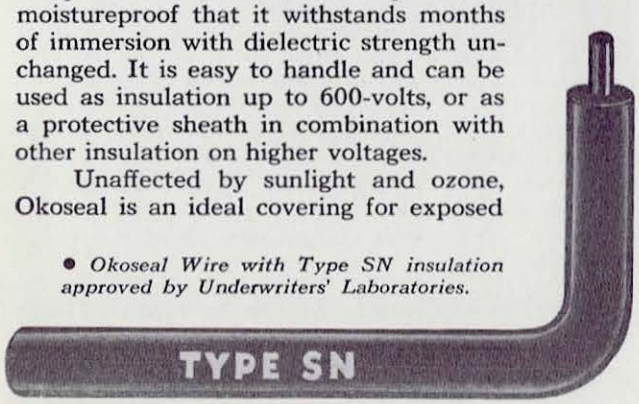
More NOTES ON SYNTHETIC COVERINGS for WIRES AND CABLES

Many improvements of insulated wires and cables have been developed by the Okonite engineering and research staffs to meet the exacting requirements demanded by today's severe railroad operating conditions. These improved cables are available for every branch of railway service. For example:

Okoseal is a synthetic insulation possessing outstanding characteristics. It is heat, acid, alkali, oil and grease resisting, flameproof and will not support combustion. These properties, alone, are sufficiently important to make it especially adaptable for vital circuits in hazardous locations. One of the first applications of Okoseal was on switchboard wire.

Okoseal is a tough, leather-like, abrasion and impact resisting insulation, processed in a manner similar to rubber, and yet so pliable that it bends around sharp corners. No braids are required. Okoseal is so moistureproof that it withstands months of immersion with dielectric strength unchanged. It is easy to handle and can be used as insulation up to 600-volts, or as a protective sheath in combination with other insulation on higher voltages.

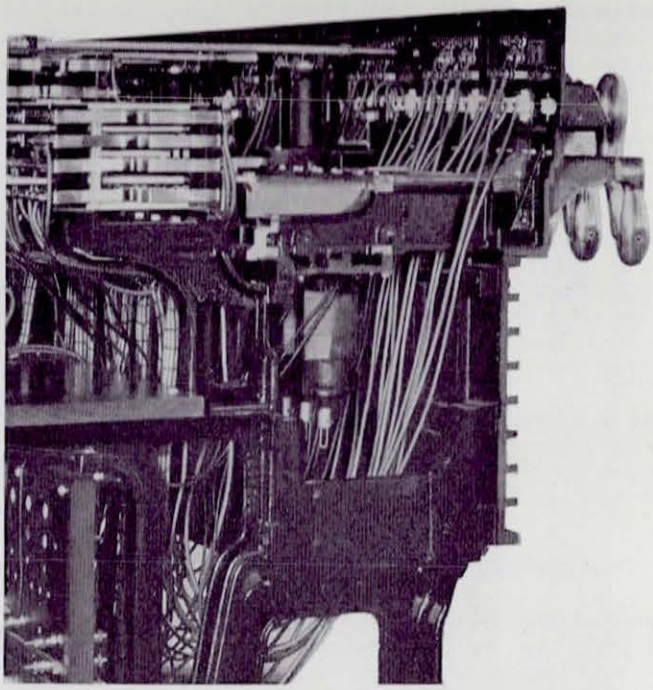
Unaffected by sunlight and ozone, Okoseal is an ideal covering for exposed cables or where high-voltage discharge might affect ordinary rubber-compound insulations.



• *Okoseal Wire with Type SN insulation approved by Underwriters' Laboratories.*

• *Okoseal wires can be supplied in sizes from 22 AWG to 1,500,000 circular mils, although Underwriters' standards cover only sizes 18 AWG to 4/0 AWG.*

Okoseal is durable and permanent. It does not deteriorate under natural aging conditions, nor is it changed by accelerated aging tests in the oxygen bomb, the air-bomb, or the Geer oven. A section of #14 AWG Okoseal insulated wire was exposed in an air oven to a temperature of 212° F. (100° C.), the boiling point of water. Yet, after 18 months of this severe treatment, it retained the properties of new wire.

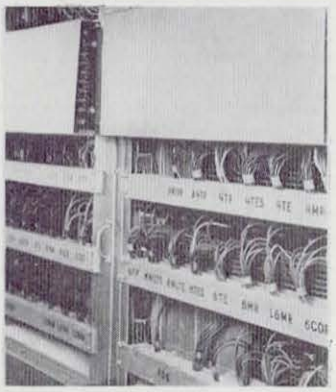


• *Okoseal for interlocking machines, up to 80° C. (176° F.), minimum working voltage 600-volts; with felted asbestos and braid covering for temperatures up to 90° C. (or 194° F.).*

Okoseal is approved by the Underwriters' Laboratories for rewiring existing raceways up to 600-volts — maximum temperature 60° C.; on switchboards where temperatures do not exceed 80° C.; within appliances where exposed to oils and temperatures not exceeding 60° C., and within appliances where exposed to air and temperatures do not exceed 80° C.

Okoseal is made in colors for circuit identification.

Okoseal is fully described in our Bulletin OK-2001A. A copy will be mailed on request.



• *Okoseal wiring at rear of relay rack.*

THE OKONITE COMPANY
Passaic, New Jersey
Offices in Principal Cities

3206

OKONITE
Insulated Wires and Cables

Salvage Your Scrap — Buy U. S. War Bonds

RAILWAY AGE

Efficiency FOR VICTORY

Protecting the Domestic Economy

Rubber Administrator Jeffers is reported in the press to have protested before a House Committee recently against the army and navy trying to "run business" and "operate the domestic economy."

We are glad that protest was made, and that it was made by a railroad man. Most dealings of the army and navy with the railroads during the present war period have been satisfactory. But there has been altogether too much evidence of a tendency by those conducting the war to disregard effects of what they do on business and the domestic economy. A domestic economy strong enough to support war operations is as essential as a strong enough army, navy and air force to carry them on. Policies that break down the economy on the home front will as certainly hinder winning of the war as a breakdown on the fighting front. And they will more certainly cripple the nation in the post-war period.

Mr. Jeffers is a transportation man. He knows the effects on highway transportation that will be produced by unduly denying it rubber. He knows also, the effects on transportation by rail, both local and national, that will be produced by excessive diversion of traffic from streets and roads when government is withholding needed equipment and materials from both local and national transportation by rail.

Transportation is the backbone of the domestic economy. Break it down, and enough freight cannot be moved, and business men and workers cannot do their essential work. We are steadily approaching a breakdown of local and national transportation. And if and when this comes, the domestic economy will become unable to support an increasing war effort.

Most military men do not understand these matters. They have not been educated and trained to understand them. Many of them apparently believe there is no limit to what the domestic economy can stand. The more it has stood, the more demands they have made on it. When protests are made against their exorbitant demands, they often reply by threatening measures of coercion—the use of coercion being what they have been educated and trained for.

No way has yet been discovered of forcing a quart into a pint bottle. Nor has any means of coercion yet been discovered by which a domestic economy can be forced to produce and supply beyond its capacity or beyond the capacity of its means of transportation to carry passengers and freight. The government is fortunate in having in a key position a man such as Mr. Jeffers who courageously says what he thinks and fights for what he believes should be done. More men are needed in such positions who realize how the domestic economy is being endangered and who will resist policies endangering it.

Train Accidents in War Time

Within recent years numerous discussions concerning signaling have emphasized the benefits secured by savings in train time and increased track capacity, whereas the improvements in safety have been taken for granted and given only slight mention. From this latter point of view it is worth while to study the recently issued annual report of S. N. Mills, director of the Bureau of Safety, which includes a discussion of the increasing number of collisions on territories where train movements are authorized by time tables and train orders, with no block system in service. Mr. Mills remarks "that the loss of man-hours which results from railway accidents, as well as the destruction of or damage to locomotives, cars and contents, restricts our war effort. The effect of these losses, as compared with the sinking of ships at sea, differs only in respect to the number of men and volume of essential equipment or materials sacrificed. Under these emergency conditions, the prevention of accidents assumes an importance that is in addition to the economic and humanitarian consideration to be given to accidents under peace time conditions."

The report mentions the impossibility of compiling statistics of accidents which are prevented by block signaling, or in other words, the accidents which did not occur. On the other hand, the Bureau has complete data concerning numerous accidents which have occurred in territories where train movements are authorized by time table and train orders. In several such instances during the last year, the Interstate Commerce Commission has ordered some of the railroads involved to show cause why the block system should not be installed, with directions that if the manual block system is to be adopted, certain rules are to be placed in effect.

This action by the Commission is based on the authority given it with respect to improvements in safety of train operation. An important fact, however, is that on a line handling even a medium number of trains, say 15 to 20 daily, a change from time table and train order operation to manual block signaling operated in accordance with the I. C. C. rules may seriously increase the train delays as well as decrease the track capacity, because these rules severely restrict permissive movements.

The installation of automatic block signaling should prevent collisions and reduce delays for following train movements, but will not obviate other delays which result from the inherent characteristics of the time table and train order system which must be continued in use. The logical procedure, therefore, is to install centralized traffic control, which includes not only automatic block protection but also semi-automatic signals by means of which train movements are authorized by signal indication without the use of train orders. A considerable number of such installations that were made during 1942, have improved safety, which is desired equally by the Bureau of Safety and the railroads, and in addition have reduced train time and increased track capacity, thereby effecting savings which, within a few years, will more than offset the cost of the signaling installations.

Manpower for Maintenance

Manpower is rapidly becoming the most pressing problem confronting the railways. And on the railways this problem is most acute in the maintenance of way department, for here the war industries, with their higher wages, have made greatest inroads. In no department is the need for labor more insistent, for the railways are now carrying the largest volume of traffic in their history, and the regularity with which this traffic moves depends first and foremost on the character of maintenance of the tracks and structures. Every train that passes over these tracks takes its toll of service life, and this toll must be replaced currently if disaster is to be avoided.

The railways are devising many expedients to meet the situation. They are employing younger men and older men; they are lowering their physical requirements; they are expanding their agencies for recruiting labor; they are employing women for certain tasks; they are improving their camp and camp car facilities for housing and feeding their men. All these measures are important; they are all contributing to a degree to the solution of the problem. Yet all of them combined fall far short of meeting the situation. Far more vigorous measures must be adopted, and this very soon, if the railways are to be able to do the work on their tracks and structures this summer that is so urgently required.

Director Joseph B. Eastman of the Office of Defense Transportation has shown his appreciation of this fact by appealing to the Manpower Commission to "take immediate steps to obtain sufficient track workers for the safe maintenance of track and roadway." Recognizing that adequate supplies of domestic labor are not available, he has requested that immediate steps be taken to arrange for the importation of laborers from Mexico in sufficient numbers to meet the most pressing needs. In this suggestion he has supplemented the appeals of individual railways, particularly in the Southwest, which have long found relief in this direction in more normal times. There is a reservoir of labor below the Mexican border which will provide the relief that is so urgently needed.

Director Eastman is to be commended for his insistence that the Manpower Commission recognize these facts. Under our present organization in government neither he nor the railways can do more. The responsibility rests with the Manpower Commission. The need for relief is urgent if the railways' contribution to the war effort is to be maintained at its present high level.

Signal Performance

A measure of the efficiency of signal construction and maintenance is the number of unnecessary train stops caused by failures in which signals display restrictive aspects when proceed aspects should be shown. The annual report issued recently by the Bureau of Safety for the fiscal year ending June 30, 1942, lists a total of 22,147 false restrictive aspects in block signal systems, as compared with 20,687 during the previous year, and 9,593 such failures at interlockings as compared with 9,039 the previous year. The total increase, 2,014 or 7 per cent, can be explained by the larger number of signaling units in service, the increased numbers of trains and other circumstances caused by the war, rather than by laxity in maintenance and supervision. While the false restrictive aspect may cause train delays, no hazard is involved, in contrast with false-proceed aspects which may be hazardous. It is of interest to note, therefore, that, in spite of the difficulties inherent in these days, the number of false-proceed aspects in block systems, interlocking, train stop, train control, cab and other forms of signaling, decreased from 276 in the year ending June 30, 1940, to 233 in 1941 and to 223 in 1942.

The figures cited are for signaling in service on the railroads of the United States. Extensive new projects are installed from time to time, but a good average of the total number of signaling units in service is that on the first day of each year. On January 1, 1941, the signal equipment in service included 4,943 interlockings and 96,459 track miles of automatic block, totaling approximately 186,000 signals; whereas on January 1, 1942, there were 5,325 interlockings and 97,361 track miles of automatic block in service. Thus, at least 3,000 more signals, with possibilities of failures, were in use during the second fiscal year.

Furthermore, various elements in signaling systems, such as rail bonding and track connections, wear or break in proportion to the number and lengths of trains. Therefore, an increase from 909,946,000 train miles operated in the fiscal year ending June 30, 1941, to 1,030,287,000 train miles during the succeeding similar period, was an important factor contributing to the increase in the number of signal failures. This 13 per cent increase in train miles compares with a 7 per cent increase in the number of signal failures which caused train stops. Furthermore, when traffic is heavy, more trains encounter restrictive aspects at signals during the period while the defects are being located and corrected.

As a whole, therefore, and giving due consideration to the numerous obstacles caused by the war, the performance of signaling has been creditable.

What Is a "Tory"?

The term "Tory" came into use during the reign of Charles II, in the latter part of the 17th century, to designate those who sought to weaken the power of parliament, while magnifying the prerogatives of the king. They labored to undermine the independence of the *legislative* and *judicial* departments of the government, seeking to make them wholly subservient to the *executive*.

Railroads and Welding

It is interesting to note, in view of the ever-increasing use of welding processes in the construction and maintenance of railway equipment, the report of membership of the American Welding Society as of the end of the year 1942. Among the 5,226 members of all classifications listed only 40 were associated in any capacity with an American railroad. These 40 men came from 21 different companies, most of which had only one member; the best-represented had six. Nineteen different job classifications were included which were concerned with the building, maintenance or repair of equipment, track or structures. Only 22 of the men could be identified as immediately interested in the applications of welding to the motive power and rolling stock of the lines with which they were connected.

Without any intention of serving as an agency to solicit members for the Welding Society, we believe that these figures point to a weakness in the preparation which the railroads are making for the post-war period when modern processes must be relied upon to hold at a minimum the building and repair cost figures of the railroads. The war is proving that welding as a "tool of industry" has been constantly expanding in usefulness. After the war the railroads, with other industries, will probably be increasing their use of welding processes. Familiarity with them will be an essential factor in realizing full benefits and savings.

Many roads have competent men on their staffs who are not members of the Society and who are probably capable of continuing in their work without benefit of membership and the interchange of ideas which it affords through meetings and publications. However, there are none whose information, knowledge and skill would not be increased by closer contact with this body.

Railroads made many of the early contributions to the development of autogenous welding processes; in fact, the early history of welding is largely one of progress in railway shops. From this pioneering position the railroads have allowed themselves to fall back until they are no longer in the forefront in this field. Welding, either in design or application, should no longer be left in the hands of a man with little knowledge. Membership in an association is no evidence of ability or knowledge, but it is a standard by which interest can be judged.

Renewing Light Spans Strengthens Line for War-Time Traffic

Chicago & North Western completes renewal of early bridge over Mississippi river at Winona, Minn., with no interference with trains during progress of work

By A. R. Harris

Assistant Engineer of Bridges, Chicago & North Western

PRIMARILY to remove restrictions on the use of modern locomotives over an important bridge on one of its heavy-traffic lines, the Chicago & North Western has replaced two light long-span through trusses with six shorter deck-plate girders designed for the heaviest modern loading. The completion of this work has not only strengthened this important line to enable the railway to handle war-time traffic with greater facility, but also enables it to do so with greater security.

Not the least interesting features connected with the work were that it was done without the construction of a temporary bridge or the use of falsework, and without interfering with trains, although the bridge is on a relatively heavy traffic line. Other features were that horizontal clearances in the through spans were so limited that it was necessary, when unloading the girder spans preparatory to installing them, to place them on the side of the track opposite their final position, with the lateral plates turned outward, and even this expedient allowed only one inch clearance on each side of the track.

An Early Bridge

This bridge crosses the Mississippi river at Winona, Minn., on the line which extends across Southern Minnesota and South Dakota. It was built originally in 1869 and 1870 by the Winona & St. Peter, which later was merged with the North Western. At the time of completion, the 363-ft. draw span was rated as one of the longest of its type in existence. In accordance with accepted practice at that time, it was a combination structure of wood and iron. On May 27, 1871, shortly after the bridge was opened for traffic this span fell, as a result of an accident, and the bridge remained out of service until it was replaced almost a year later by a new span constructed of iron throughout.

As then constructed, from east to west the bridge consisted of five through-truss spans, each 160 ft. long; seven similar spans, each 142 ft. 6 in.; two through spans, each 246 ft.; one swing draw span 363 ft.; and a timber trestle approach. Later, an 85-ft. span replaced that part of the trestle immediately adjacent to the draw span. The masonry pivot and rest piers which supported the draw span are still in service and in good condition.

At the time the Winona & St. Peter was built, the country adjacent to the line was sparsely settled, and the purpose of the construction was to open up the rich prairie country west of the Mississippi river. It is a commentary on the conditions then existing that it was decided to use long spans for the bridge over the river

The Two 246-Ft. Through Spans That Were Replaced—Draw Span at Left

primarily to avoid obstructions to the passage of the large amount of driftwood carried by the stream during high water and thus prevent accumulations around the piers, that might cause scour. This was no longer a consideration in 1928, when preparations were begun for the latest replacement of these spans. This permitted spans of more economical length to be chosen, and they were shortened appreciably.

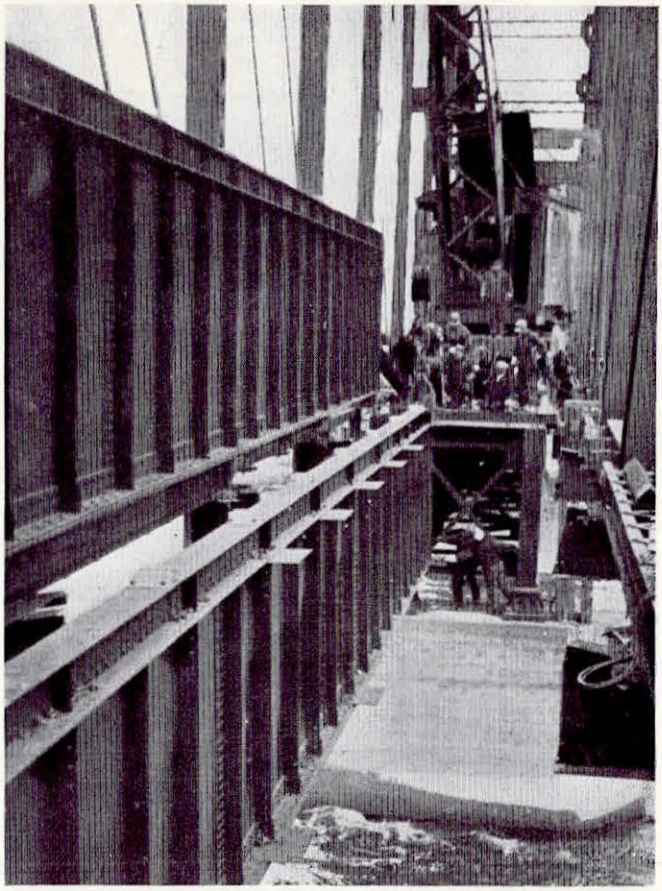
It was only a few years until the original combination wood and iron trusses required renewal, and the five 160-ft. spans were replaced in 1885, the renewal of the seven 142-ft. 6-in. spans being completed the following year. However, the original 246-ft. spans remained in service until 1893, when they too were replaced. When the draw span was rebuilt after the accident, iron members replaced the wood members of the original trusses, and the rebuilt draw span lasted until 1898, at which time the 85-ft. deck-plate girder also replaced the old iron truss that had been installed in the west approach to the bridge in 1878.

The Old Bridge Was Too Light

All of the spans installed in 1885 and 1886 consisted of through-riveted triple-intersection trusses, while the two spans erected in 1893 were pin-connected and of the Pratt type. All of these spans were designed for Cooper's E-30 loading and the material from which they were fabricated consisted of wrought iron, except the eye bars in the pin-connected trusses, which were of steel.

By 1928 it became necessary to replace these spans with others designed for heavier loading. Accordingly, during this year plans were prepared and 26 concrete piers were constructed, Pier 9, which had been rebuilt in 1924, being retained from the old bridge. Then in 1929 and 1930, the easterly 12 spans were replaced with 26 deck-girder spans ranging in length from 40 to 71 ft. The original plan for removing the low-rated spans of the superstructure also contemplated the replacement of the two 246-ft. pin-connected trusses with six 89-ft. 6-in. deck girders. It was expected that this would be done as a continuation of the project, and the piers for their support were completed in 1929. The girders for these openings were fabricated in 1930, but owing to the conditions that arose out of the debacle of 1929, it became necessary to defer their erection until a more favorable time. Accordingly the new spans were stored near the bridge until opportunity was afforded for their erection.

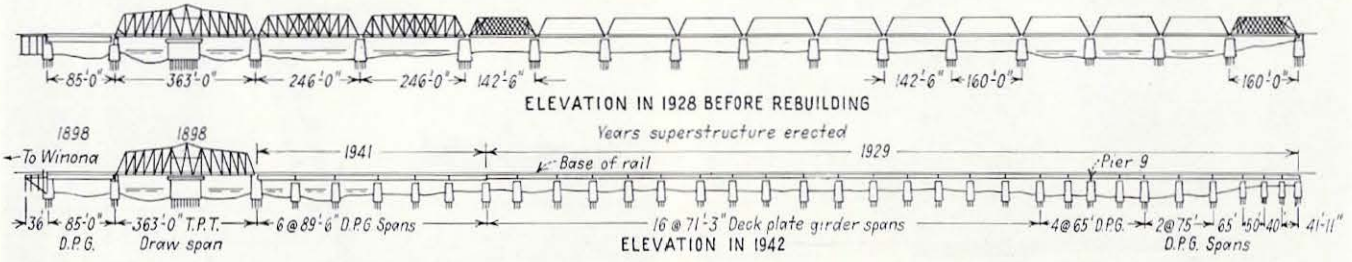
In preparation for the erection of these six spans, a complete scheme and a time table were worked out, with the dual purpose of causing the least possible interference with train movements and of keeping the cost of erection to the minimum through the use of available erection equipment owned by the railway. In making this study, it was found that through a slight adjustment of train schedules and by detouring one train for a short distance over another road, a six-hour working period, free of interference, could be obtained, and these arrangements were made.



Setting an 89-Ft. 6-In. Girder. It is Being Lifted to Position from Opposite Side of Bridge

How the Work Was Scheduled

As soon as the track was clear, at 6:45 a.m., the 89-ft. 6-in. girders for the first span, weighing 29 tons each, were taken onto the bridge on cars and were set off alongside the trusses by two locomotive cranes. In this position they were supported by timber posts extending down to the new concrete piers, the posts being fastened to the trusses to assure lateral support. The horizontal clearance of the trusses was only 7 ft. from the center of the track, making the clear distance between trusses only 14 ft. For this reason it became a difficult matter to set the girders off and still retain sufficient clearance to permit train movements across the bridge. The problem was solved by notching out the end posts to provide a slot for the flanges of the girders. While this placed the



Elevations of the Chicago and North Western's Bridge Over the Mississippi River Before and After the Replacement of Its Through Trusses

flanges of the girders in the clear by a narrow margin, the lateral plates still fouled the track. This difficulty was overcome, however, by setting the girders off on the side of the track opposite the position they were to occupy after installation, with the lateral plates turned outward. So narrow was the margin that even after this had been done, the actual distance between the flanges was only 11 ft. 2 in., which was barely sufficient to clear standard equipment having an overall width of 11 ft.

All of the work connected with unloading and securing the girders was carried out during intervals between trains and was completed prior to the beginning of the six-hour period that has been mentioned. At the beginning of this period the bridge was closed to traffic, and one locomotive crane was placed at each end of the new girders. At the same time, six operators with cutting torches, who had been standing by, began to cut out the floor system over the length of 90 ft. necessary to accommodate the 89-ft. 6-in. girders, the cut-out members being loaded onto cars for removal to the yard a short distance beyond the end of the bridge.

To do this, a gondola was placed ahead of one of the cranes, and as the members of the floor system were cut out they were loaded by one or the other of the cranes. When this car was loaded, the work train took it back to the yard and picked up an empty car. As only one car could be handled between the cranes, because of the long reach involved in removing the members of the floor system, this operation and that of moving back to the shore with the loaded car contributed materially to the time required to place the new spans and restore the track to service. To facilitate the handling of the cranes, sections of the top lateral system were removed and replaced progressively as the work proceeded.

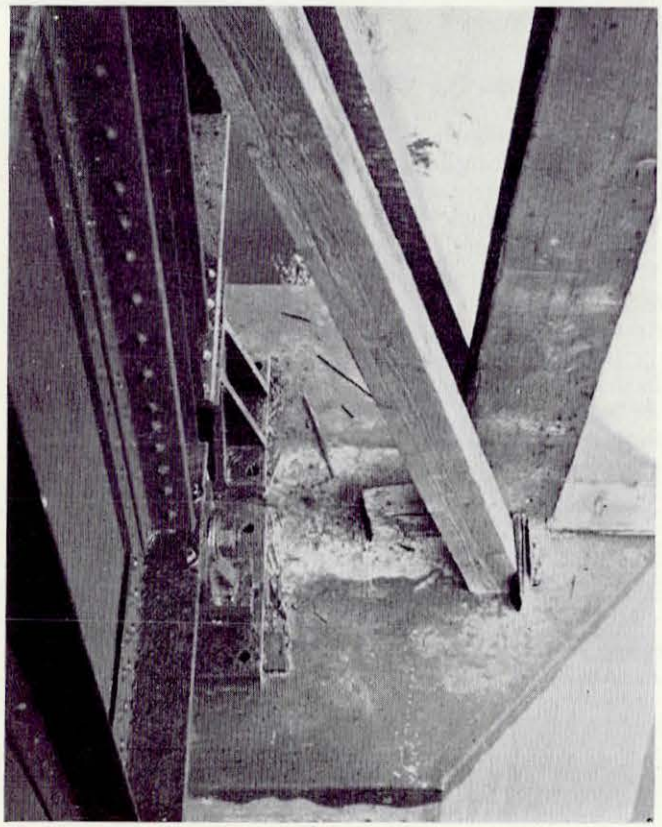
As soon as the cuttting out of the floor system had been completed, the car in which these members were loaded as they were removed, was taken from the bridge and the cranes lifted the new deck girders from their temporary supports and lowered them onto the piers. They were then bolted, a temporary deck was installed and the track was restored to service. The same sequence of operations was followed for each of the remaining girders, all of which were set without incident. The temporary deck was maintained in service until the trusses had been dismantled, after which the permanent deck was installed.

Following the erection of the first span, steel barracks were attached to the new girders at intervals corresponding to the panel lengths of the truss spans. These brackets extended out under the chords of the old trusses, and were designed to support the dead panel weights of the trusses during dismantling. To avoid the possibility of lateral movement, the bottom chords of the trusses were secured to the girders. As a further precaution and to guard against overturning when the brackets were loaded with the weight of the trusses, the girders were braced securely at each pier.

Dismantling the Old Trusses

As soon as the last of the new spans had been riveted, the dismantling of the truss spans was started. As they were both taken down in the same manner, only the removal of the first one will be described. The first step in the operation was to relieve the chords of stress. This was done by the simple method of driving hardwood wedges between the bottom chord and the blocking that was placed over the temporary steel brackets that have been mentioned. When it was believed that these wedges had been tightened sufficiently, the top chord of the truss was cut at the middle by means of an oxy-acetylene torch, a two-inch transverse section being removed. Confirming the judgment of the steel erectors with re-

(*Continued on page 358*)



Bracing Girders to Permit Support of Truss

Driving Wedges at Panel Point. Rescue Boat Upstream

Future Diesel-Locomotive Weights*

Possibilities of small versus large engine-generator units—Their probable effect on maintenance considered in the discussion

By P. B. Jackson

Aluminum Company of America

IN the speed range above 20 m. p. h. the available tractive force of a road locomotive, for either freight or passenger service, is limited to the power developed by the Diesel engines. This is not sufficient to produce maximum tractive force in the high-speed range. Maximum tractive force for any locomotive can be attained by making all axles driving axles, but the weight of present Diesel road locomotives makes this impractical and, in fact, of little advantage in the overall performance of the unit. In spite of the possibilities of large weight saving, it is doubtful if a road locomotive will ever be light enough to make its starting and low-speed performance unsatisfactory.

Table I is a tabulation of a number of factors that describe some of the characteristics of two locomotives. Locomotive *A* is an existing unit of 6,000 hp. Locomotive *B* is a unit intended for the same service and to give approximately the same performance. The two outstanding differences are a reduction of weight of 275,000 lb. and a reduction in horsepower of 750. Further reference to this table will be made after comparisons of the performance curves are completed.

Comparative Behavior of Two Locomotives

Fig. 1 shows a series of curves that compare several performance factors of the two locomotives whose characteristics are outlined in the table. Curves 1 and 2 are the available tractive force of locomotives *A* and *B*, respectively. Numbers 3 and 4 are resistance curves of each locomotive plus a trailing load of 15 cars weighing 66 tons each. It will be noted that these cross at 100 m. p. h. for the *A* powered train and 97.5 m. p. h. for the *B* powered train. These maximum speeds are for equal trailing or revenue producing capacity. The *B* unit is 750 hp. less than the *A* unit, and obviously is the more economical to operate. The difference in maximum speed of the two trains, both on level track as well as on grades, is so small that differences in the mechanical, electrical, or track conditions would produce performance variations of greater magnitude than are indicated by these curves.

Curves Nos. 5 to 10, inclusive, Fig. 1, indicate the total train resistances on ½, 1, and 1½-per cent grades. They illustrate the value in weight reduction in the locomotive, particularly at speeds below 70 m. p. h.

The two acceleration curves, Fig. 2, in time, and Fig. 3, in distance, coincide exactly up to speeds of 16 m. p. h. and are so similar up to speeds of 70 m. p. h. that it is impractical to show them separately. A small further decrease in weight in the locomotive *B* or the trailing cars, or a slight increase in horsepower would make the performance the same over the entire speed range.

* Abstract of a paper presented at a joint Oil and Gas Power and Railroad Session of the annual meeting of the American Society of Mechanical Engineers held at New York on December 2, 1942.

Table I.—A Study of Weight-Saving Possibilities in the Diesel Locomotives

	Locomotive A	Locomotive B	Saving
Weight, lb.	1,035,000	760,000	275,000
Horsepower	6,000	5,250	....
Number of axles	18	14	....
Number of engine cylinders	36	120 or 128	....
Weight of Diesel engines, lb.	198,000	52,500	145,500
Weight of Diesel engines per hp., lb.	33	10	....
Weight of electrical equipment, lb.	190,000	166,000	24,000
Weight of electrical equipment per hp., lb.	31.7	31.7	....
Weight of mechanical equipment, lb.	600,000	540,500	59,500
Weight of mechanical equipment per hp., lb.	100	102.75*	....
Weight of lubricating fuel, and water, lb.	47,000	41,000	6,000
Weight saved by eliminating one four-wheel truck, lb.	....	....	26,000
Weight saved by the use of aluminum tanks for oil, fuel and water, lb.	....	....	5,250
Weight saved by the use of aluminum for locomotive cab, lb.	....	....	8,750
Weight saved by the use of aluminum in the Diesel engine, lb.	....	....	34,125
Total weight saved by the use of aluminum, lb.	....	....	48,125
Maximum speed with 15 66-ton cars; m. p. h.:			
On level track	100	97.5	....
On 0.3 per cent grade	69	67	....
On 1 per cent grade	49	47	....
Fuel oil saved per year, gals.	....	....	145,000
Lubrication oil saved per year, gals.	....	....	900
Cost of locomotive at $100 per hp.	$600,000	$525,000	....
Cost of saving 48,125 lb. at 40 cents per lb.	....	19,250	....
Total cost of locomotives	$600,000	$544,250	$55,750

* This increase is to make allowance for parts such as car-heating equipment and controls which are common to both locomotives and cannot be reduced in weight on the basis of horsepower.

Fig. 4, while shown as a single curve, is really two curves, giving the available drawbar pull per ton of train weight for each complete train. They fall so close together that the width of the line covers the difference. These small differences are apparent only during 100 per cent load factor operation. Any schedule of the *A* train which is operated at or under 90 per cent load factor would probably be duplicated by the *B* train operating at a slightly higher load factor than the *A* unit.

The table shows some of the economies which may be realized in the operation of a light road locomotive. The fuel saved per year, on the basis of a 60 per cent load factor and 6,000 hrs. a year operation, amounts to 145,000 gals.

With a lubricating-oil consumption of 3,000-hp. hrs. per gal. under like operation a saving of 900 gals. per year could be expected.

The first cost of the light locomotive is difficult to estimate until more detailed specifications and designs are completed. The notations in the table relating to first cost are estimates only but can be rationalized for the purpose intended. They are based on the assumption that the cost of locomotive *A* bears a definite relation to its horsepower and that locomotive *B* costs will be in

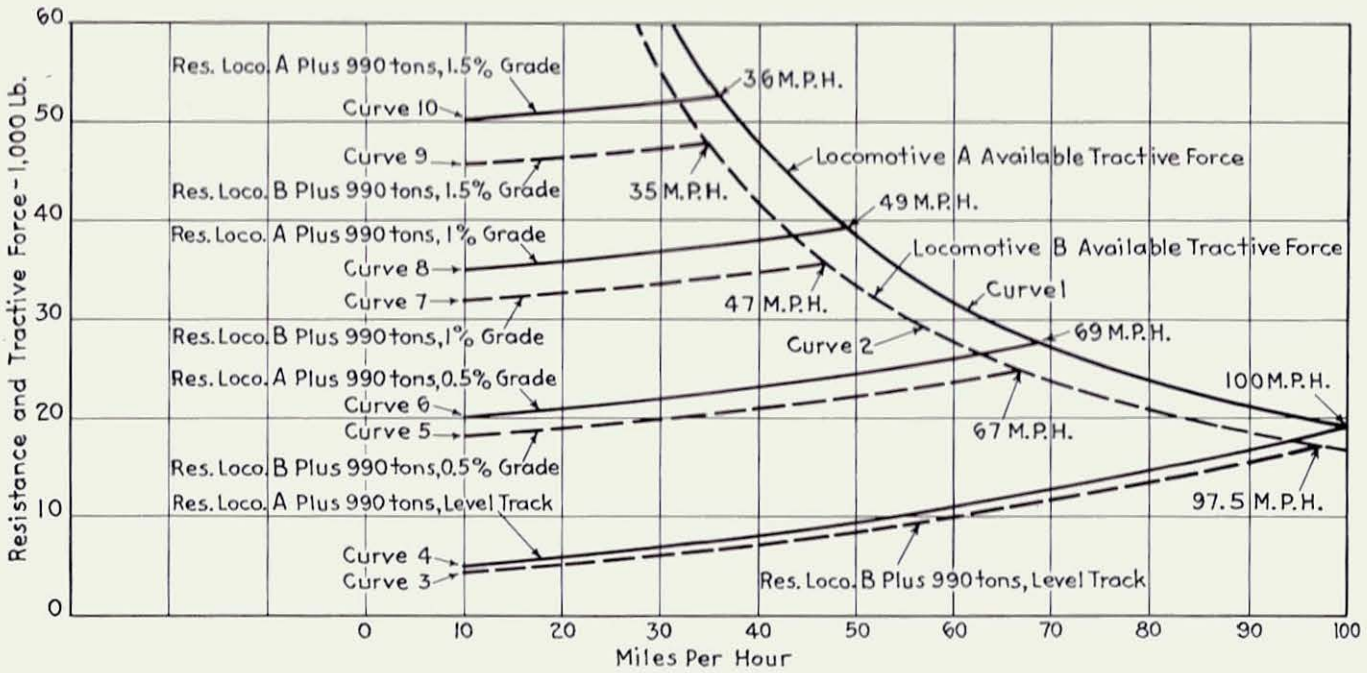


Fig. 1.—Resistance and Tractive-Force Curves of the Locomotives in Table 1 Plus 15 66-Ton Cars

close agreement except where materials used to save weight cost more than the materials replaced. In this analysis, some 48,000 lb. were saved by replacing materials now used with aluminum. At a cost of 40 cents per pound saved, which is a very conservative figure, the weight reduction would add $19,200 to the cost of the *B* locomotive. The total cost of locomotive *A* is approximately 10 per cent higher than that of the *B* unit.

Because no unusual engineering has been proposed for locomotive *B*, maintenance cost should be no higher than existing equipment and might well be lower because of the fewer axles and lighter axle loads. The use of an increased number of engines should lead to maintenance procedure that could easily result in lower costs and greater availability.

Many developments in the Diesel industry have been

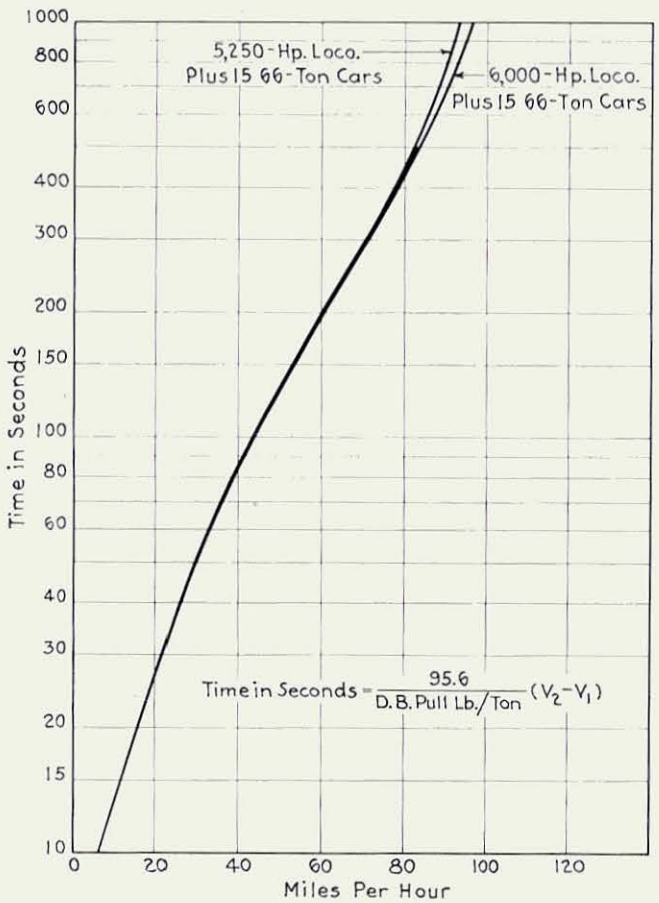

Time in Seconds
Miles Per Hour
5,250-Hp. Loco. Plus 15 66-Ton Cars
6,000-Hp. Loco. Plus 15 66-Ton Cars
Time in Seconds = 95.6 / D.B. Pull Lb./Ton (V2-V1)

Fig. 2.—Acceleration Speed-Time Curves

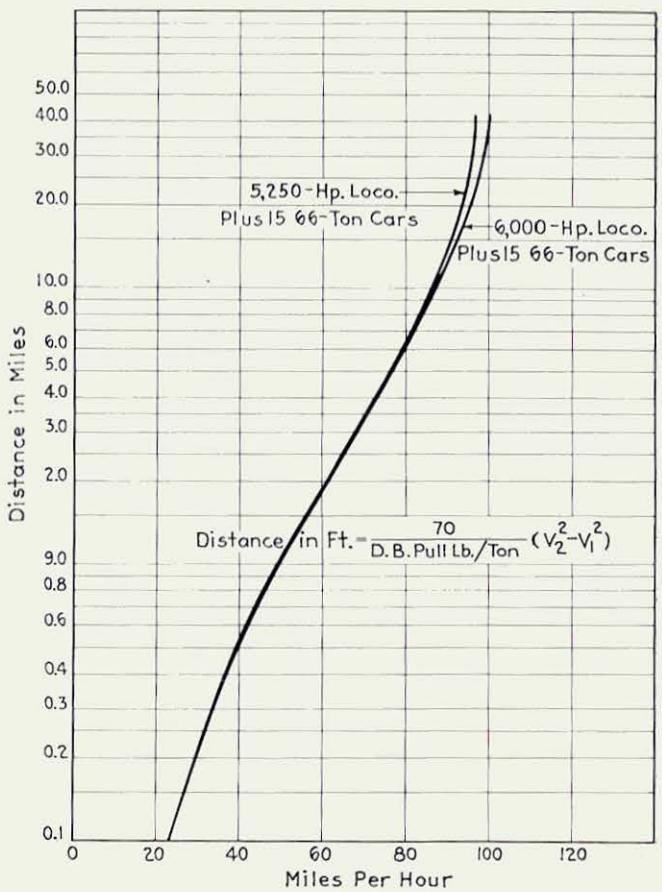

Distance in Miles
Miles Per Hour
5,250-Hp. Loco. Plus 15 66-Ton Cars
6,000-Hp. Loco. Plus 15 66-Ton Cars
Distance in Ft. = 70 / D.B. Pull Lb./Ton (V2²-V1²)

Fig. 3.—Acceleration Speed-Distance Curve

made in the past few years that have contributed to more compact and lighter engine designs. Engines of 10 lb. per hp. are available at conservative rating and are as long lived and reliable as their earlier predecessors. Three major developments are responsible, each contributing to the greater compactness and lighter weight. Each of these developments will be discussed briefly and are: (1) the practicability of smaller cylinder sizes, resulting from advances in injection equipment; (2) supercharging, allowing for higher safe engine rating; (3) materials relatively new in Diesel construction.

The combustion characteristics of Diesel engines are easier to control in large cylinder sizes because of the greater distances available for fuel penetration and larger quantities of fuel handled per cycle. Developments in injection equipment have made possible excellent combustion characteristics in small cylinders without the necessity of providing pre-combustion chambers which are prevalent in the automotive engine designs.

Engine dimensions for any given standard of design vary directly with the bore. In other words, the overall lineal dimensions are reduced directly with the bore. Fig. 5 shows these relations in a comparison between engines with bores in the ratio of 2:1. Specifically stated, a single 1,000-hp. engine will weigh twice as much as four 250-hp. engines having a bore one-half that of the large engine. The space occupied by the four smaller engines will be half that of the single large unit. These reductions have been made without change in the engine rating, materials of construction, or design standards such as unit bearing pressures, cylinder centers, and bore-stroke ratios which are the major factors contributing to reliability and long engine life.

Supercharging

Supercharging has increased engine ratings materially and has also made small cylinder sizes more practical because of the larger quantities of fuel supplied per cycle. Increases in both piston speed and mean effective pressure become mechanical and the thermal problems rather than volumetric problems which limit the output of naturally aspirated engines. Changes in engine rating have a direct influence on specific engine weight and specific compactness. An increase in both mean effective pressure and piston speed of 18 per cent result in weight and space saving in the order of 40 per cent.

Many, if not all, of the thermal problems in an internal combustion engine are a function of waste heat to be dissipated per cycle per square inch of combustion-chamber area which includes pistons, cylinder head, valves, and cylinder liner. This heat load becomes a function of cylinder diameter. The small engine in the comparison shown on Fig. 5 will have one-half the specific heat load of the large engine. This provides a large factor of safety if higher mean effective pressures are contemplated and will not become the limiting factor in development in this direction within the range of near future probabilities.

Small Engines More Rigid

Analysis of the dynamic loadings which determine many of the bearing loads shows that they are a function of the square of the cylinder diameter and in the comparison in Fig. 6 is shown a ratio of 1:4 in favor of the small engine. Bearing areas are also in the same ratio so that unit bearing pressures do not change in spite of the higher rotative speed of the small engine. The possibility of further small engine development could well be in the direction of increased speed without fear of reaching an impractical or unsafe operating speed range. It is the dynamic loading of an engine that dictates many of its dimensional characteristics which, in

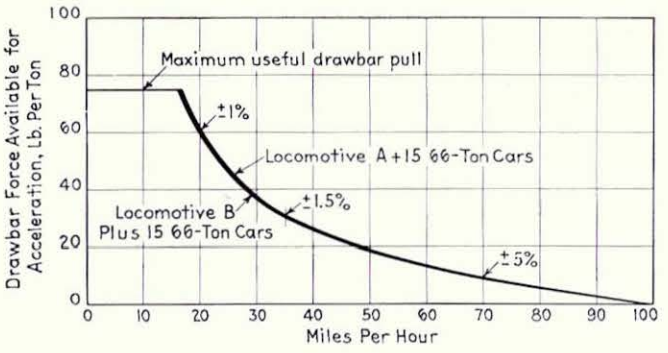


Fig. 4.—Available Drawbar Pull in Pounds per Ton

$$\frac{\left(\frac{0.85 \times \text{hp.} \times 375}{\text{m. p. h.}}\right) - \text{total train resistance, lb.}}{\text{total train weight (tons)}}$$

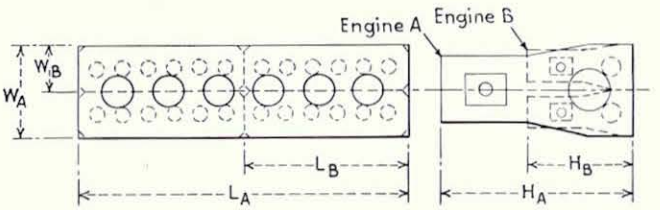


Fig. 5.—Comparison of Compactness and Weights of Diesel Engines With Large and Small Cylinders

	Engine *A*	Engine *B*	Combined small engines
Number of cylinders	6	6	24
Horsepower	4	1	4
Bore	2	1	1
Stroke	2	1	1
R. p. m.	1	2	2
Piston speed	1	1	1
Mean effective pressure	1	1	1
Compactness factor	8	1	4
Weight factor	8	1	4

$$\text{Compactness factor} = \frac{\text{(constant) HWL}}{\text{(Constant) (Compactness factor)}}$$

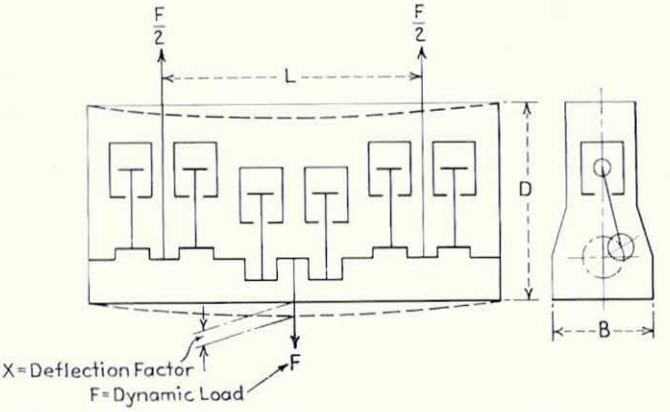


Fig. 6.—Comparison of Dynamic Loading and Deflection

	Engine *A*	Engine *B*
Bore	2	1
R = stroke	2	1
N = r. p. m.	1	2
W = weight of moving parts	8	1
D = height of engine	2	1
B = width of engine	2	1
L = distance between bearings	2	1
F = constant (WRN^2)	4	1
X = constant ($Fl^3 \div BD^3$)	2	1

Dynamic loading and deflections comparison

turn, determine rigidity factors. Fig. 6 also shows a comparison of the rigidity between the same two engines previously discussed. The small engine is inherently twice as rigid as the large engine, other factors being the same.

The advantages of a small engine may be summarized as follows: Engine *B* compared with engine *A*, both having the same specific output has: (1) half the specific weight; (2) half the specific bulk; (3) the same general volumetric characteristics; (4) half the specific heat load per cycle; (5) one fourth the dynamic load factor, and (6) twice the inherent rigidity.

The multiplicity of cylinders appear to be the one major difference that might detract from the comparison of the two engines. This may well be counteracted by the greater basic reliability of the small engines by virtue of lower heat and dynamic load, and deflection factors inherent in the small bore engine. The maintenance problem may well be simpler for the smaller engine because of the reduced weight of all of the engine parts allowing more ease in handling. There is also the possibility of replacing a complete engine generator unit in the event of failure or routine maintenance. A failure of one of the small engines would have far less influence on the locomotive performance than a complete failure of one large engine. Multiplicity of engine cylinders in other internal combustion engine applications have tended to increase reliability rather than otherwise.

Where Aluminum Comes In

Aluminum has been extensively used in internal combustion engines for a wide variety of applications. Its characteristics do not, however, lend themselves to all of the parts going to make up a Diesel engine. Crankshafts, camshafts, valves, and cylinder liners are the major items which cannot be made in aluminum. These parts, plus other miscellaneous parts in this same category, however, account for about 25 per cent of the weight of an engine built of cast iron or steel. The cylinder block, crankcase, oil pan, cylinder heads, pistons, gears, gear covers, supercharger housing, manifolds, fuel pump housings, pumps, governor housing, fuel filters, and air filters make up the other 75 per cent of the weight. They can and have all been successfully made in some suitable aluminum alloy. Weight savings from 30 per cent to 70 per cent can be made depending on the function and design characteristics of the particular part. Much experience has shown that an average saving of 50 per cent can be made safely and without compromise to sound design practice. The net result on the total engine weight would be a reduction of 37½ per cent.

The engines for locomotive *B* described earlier in this paper, built of the same materials as engines in the *A* locomotive and with the same piston speed and mean effective pressure weigh 16.5 lb. per hp. Built in aluminum their weight would be 10.3 lb. per hp. This weight so closely approaches the requirement for engine weight set up in the table as to justify its use. Numerous other advantages of aluminum for Diesel engines, all contributing to low specific weight and smaller space requirements could be described but it is beyond the scope of this paper to discuss them. The use of aluminum for the parts proposed are fully justified by operating experience in other applications. They should be carefully engineered for this new application to insure a like satisfactory operating experience.

Referring again to the table, lines 14, 15, and 16 list a total of 40,000 lb. to be saved in parts other than engines. A large part of this weight saving can be made by reducing the number of axles under the locomotive with no increase in load per axle. Locomotive *A* was built with 18 axles with a load of 57,500 lb. per axle. Locomotive *B* because of its reduced weight could have 14 axles loaded to 54,250 lb. per axle. Two of the four axles eliminated are included in the saving listed opposite the item "Weight saved in mechanical equipment." The other two axles eliminated are listed on line 13 as "Weight saved by eliminating one four-wheel truck." The saving is 26,000 lb. which is the estimated weight of this assembly less traction motors. This figure subtracted from the 40,000 lb. listed leaves 14,000 lb. to be saved in the cab, tanks, and electrical and mechanical equipment.

Lighter Tanks

Tanks for lube oil, fuel and engine cooling water weigh, when made of steel, about two pounds per gallon. Aluminum tanks weighing one pound per gallon have given satisfactory service in railroad operation. Diesel road locomotives provide tanks for these supplies with a combined capacity of one gallon per engine horsepower. By making the tanks in aluminum, one pound per gallon could be saved or a total of 5,250 lb. for the 5,250-hp. *B* locomotive.

The aluminum sheet, structural shapes and deck used on the Pennsylvania P5-A locomotives saved 32,000 lb. per locomotive. A similar application could be made on locomotive *B* and would more than meet the requirement of 8,750 lb. remaining.

Another productive source for weight saving could be realized by arranging the Diesel engines and generators to take advantage of the reduced engine space requirements of small-bore engines. If full advantage could be taken of this space saving, the engine compartment could be made one half the length needed for the large engine installation. This might easily result in savings of an additional 100,000 to 125,000 lb. not included in the original comparison. The improvement in performance resulting from such a saving should be an incentive for a careful analysis and vigorous attempt to accomplish this result. It is obvious that weight saving by complete elimination of material not only does not add to the cost of any product but actually reduces it. Engineering along these lines pays large premiums and can make the final economic picture so attractive that new applications are justified and replacement of existing equipment may be desirable.

Conclusions

1—Weight saving in the locomotive improves all of its operating characteristics except the advantage of high tractive force at starting and for speeds up to about 20 m. p. h.

2—The greatest single weight saving can be made in the engine and can be accomplished by reduction in bore, increased rating and by the use of light materials of construction.

3—The use of small bore engines and suitable arrangement of these engines can reduce the length of the locomotive and by that token result in additional weight reduction.

No analysis has been made of the possibilities of saving weight in the electrical equipment, air brake equipment, trucks and axles, and the locomotive frame. Unquestionably, the use of aluminum alloys as well as other material developments and design improvements would produce weight saving in these parts. The road locomotive of the future can best serve its destiny by being

designed to use all of the available weight and space saving methods that can be conceived. If it results in such light weight that starting tractive force is insufficient for satisfactory train performance, ballast at a few dollars a ton will always be available.

What Is Optimum Number of Cylinders?

In the discussion which followed the presentation of Mr. Jackson's paper, W. S. H. Hamilton (New York Central System) presented a study of the factors entering into the determination of the most economical number of cylinders for Diesel locomotives, of which the following is an abstract:

The design of any road locomotive is necessarily a compromise between a number of conflicting factors. Certain criteria may, however, be set down:

1—So far as the mechanical and electrical portions are concerned, the most economical design is that having the minimum number of axles consistent with an axle loading which does not overstress track or bridges on the particular railroad involved. Ordinarily this permissible axle loading may be assumed to be between 50,000 and 65,000 lb. on rail per axle.

2—Track stresses will be reduced with a decrease in axle loading especially at high running speeds.

3—With a high axle loading and high running speeds, consideration must be given to the use of guiding trucks. Experience with high-speed electric locomotives has indicated that a running gear of the 2-C + C-2 type is the best one so far developed for this purpose.

4—So far as the Diesel engines are concerned, the minimum number of cylinders necessary to do the work should be the most economical. This statement should be modified, however, by the following additional considerations: (a) a road locomotive should preferably have at least two engines so that in case of an engine failure en route at least one will be available to move the locomotive to a point where assistance can be secured; (b) the cylinders must, however, not be so large that they produce an engine too large and heavy for traction work; (c) as the number of separate engines increases on a locomotive, the number of auxiliaries, such as governing systems, radiator systems, and lubricating-oil systems, increases; (d) an increase in the number of cylinders above the minimum may mean an increase in the cost of maintenance on account of multiplicity of parts; (e) the first cost of any Diesel engine is very much affected by its production status and this will influence the choice of an engine to a considerable degree.

Limitations of Axle Capacity

In order to determine how far it is feasible to reduce the number of axles on a locomotive to do a given job it is necessary, first, to have an approximate idea of the horsepower and speed required for the job. The maximum output that can be obtained from a given axle depends on the coefficient of adhesion based on a wet rail and also for an assumed axle load of 50,000 lb., the tractive-force horsepower and the corresponding engine horsepower output (assuming 80 per cent transmission efficiency).

Knowing the total tractive force and speed that should be developed, it is easy enough to determine from the above information the minimum number of driving axles required. The tabulation is based on 50,000 lb. per axle as an illustration and the values should be increased or decreased in proportion for the actual axle loading for the problem under consideration. The locomotive should not be designed to operate continuously at the coefficients of adhesion shown and to avoid a constant chance of slippage a margin of 10 to 15 per cent below these values is desirable for continuous operation. The coefficients of adhesion with a dry rail are somewhat greater than those shown in the table but they cannot always be counted on.

It should be noted that no more work can be done with an axle of 50,000 lb. weight on the rail than is shown by the table, and when the total number driving axles has been determined from the total horsepower requirements, any axles introduced in the design in excess of that number are uneconomical but may be necessary to meet other requirements. Usually an even number of driving axles per locomotive is used as it lends itself to a wheel arrangement that permits the most satisfactory guiding to be provided.

As the axle loading is increased beyond 50,000 lb. more attention has to be paid to the allowable bridge and track stresses and the number of locations where these weights are not permissible increases. As the axle loading is increased to permit fewer driving axles to be used, it becomes all the more necessary to provide guiding axles. The weight per guiding axle should be approximately 50 to 75 per cent of the weight per driving axle in order to insure proper guiding.

Adhesion Capacity of a 50,000-Lb. Axle Load

Speed, m. p. h.	Coefficient of adhesion, per cent, wet rail	50,000-lb. axle load: Tractive force, lb.	50,000-lb. axle load: Tractive force, hp.	Engine, hp.
0	25.0	12,500	0	—
15	25.0	12,500	500	625
20	21.0	10,500	560	700
25	18.5	9,250	620	775
30	16.5	8,250	660	825
40	14.0	7,000	750	940
50	12.5	6,250	835	1,040
60	11.0	5,500	880	1,100
70	10.0	5,000	930	1,160
80	9.0	4,500	960	1,200
90	8.5	4,250	1,020	1,275

How Many Diesel Engines?

The selection of the number of Diesel engines and cylinders to be used is a difficult problem to solve. An increase in the number of engines, while it provides a greater amount of flexibility in the operation of a locomotive, also results in an increase in the number of auxiliary systems required and tends to increase the cost of maintenance.

When increasing the number of cylinders as recommended by Mr. Jackson to reduce weight and presumably first cost as well, the effect of this increase on the cost of maintenance should not be lost sight of, and particularly the cost of inspections which must be made at periodic intervals, regardless of whether repairs are required or not, in order to forestall failures in service. This tendency is indicated very clearly in another table the first column of which is based on actual cost records over a period of years of several switching locomotives each with an eight-cylinder, 600-hp. Diesel engine. The second column is an estimate of the costs that would be incurred if the single eight-cylinder 600-hp. engines were replaced by six six-cylinder, 100-hp. engines. The cost of maintenance of the Diesel engine and auxiliaries is approximately 45 per cent of the entire locomotive maintenance cost.

In considering this problem it must be borne in mind that a small cylinder has just as many associated parts

such as valves, injectors, pistons, and bearings as a large cylinder so that for the sizes liable to be encountered in traction work the cost of inspection per cylinder is practically independent of the size. The labor for repairs should be somewhat less per cylinder as the size is decreased and it is believed to be a fair assumption that the 4-in. cylinder will require three quarters as much labor for repairs. These are bases used in the above table.

It will be noted that the estimated cost of maintaining the six six-cylinder engines is approximately two and one half times that of maintaining the single eight-

Estimated Effect on Cost of Maintenance of Number of Diesel Engines and Cylinders

	One 600-hp. engine	Six 100-hp. engines
Total number of cylinders	8	36
Cylinder diameter, in.	8	4
Labor:		
Inspection, per cent	10	45
Repairs, per cent	40	130
Material, per cent	50	85
Total, per cent	100	260

cylinder engine. It is not presumed to state that these costs are absolutely accurate nor are they based on road engine service, but they are indicative of a trend that should not be overlooked in giving consideration to increasing the number of cylinders, and a comparison should be made along the above lines before deciding that the greater number of cylinders is desirable. While some improvement in this ratio of maintenance costs might be made by using a smaller number of engines with the same number of cylinders, the change would be small as most of the above cost ratio is based on the maintenance of the individual cylinders.

The first cost naturally is important as well as the cost of maintenance. However, unless there is a decidedly large reduction in first cost to be made by increasing the number of cylinders, the added cost of maintenance will soon cancel it out, as the cheaper first cost will affect only the material item in the total cost of maintenance. Naturally the first cost will vary greatly depending on the basis of production of the engines being compared.

It is interesting to note, however, that both the engines used in the above comparison were on a comparable production basis.

Where Can Weight Be Saved?

I believe that in the future the greatest reduction in weight and cost of Diesel engines and locomotives can be made by increasing the engine speed, and that after the war we will see a great deal of development along these lines which will have been stimulated by developments now taking place within the airplane industry. Such developments will, perhaps, make possible the installation of the total horsepower required in one cab, which is highly desirable from the weight- and space-saving standpoint as well as making possible the most economical use of the material involved. As the speeds go up the weights of parts come down, and if proper provision is made for manufacture, the first cost should also be substantially reduced.

Developments such as these can best be worked out by joint efforts of the manufacturers and the railroads so that both may have a thorough understanding of the problems involved from each other's point of view.

Renewing Light Spans Strengthens Line

(Continued from page 352)

spect to the amount of wedging that would be required to relieve the chords of stress, when this section was removed the cut ends of the chord came together only ½ in. The steel brackets were of slender proportions and there were no more bolts than the number computed as necessary to sustain the truss, yet there was no noticeable sway or deflection when the chord was cut.

In removing the span, care was exercised to remove the members of the two trusses in the same sequence and in such a way as to avoid placing an unbalanced load on the girders. To carry out this plan and to insure that there would be no misunderstanding, a complete schedule was prepared in advance and this was followed rigorously. This called for the removal of the upper chord members on each side of the middle post, then the middle post and the web members attached to it at its top. Following this, the adjacent panels were removed alternately in the same way, working toward both ends. For every member removed from one truss, the corresponding member was taken out of the opposite truss to keep the progress on the two trusses exactly the same. Top lateral members were always removed just prior to the cutting of the top chord members. The bottom chord was removed last.

As a precaution to prevent the drowning of any of the men working on the bridge, who might have the misfortune to fall into the river, two boatmen patrolled the area under the structure constantly while the girders were being unloaded and installed, while the old floor system was being removed and while the trusses were being dismantled. Fortunately, they were not called upon to perform any rescue work.

A Typical Day's Work

A typical day's work, using the actual time for the beginning or end of each operation, was as follows:

Cars with girders taken onto bridge	6:45 a. m.
Girders on posts and anchored to trusses	7:35 a. m.
Local freight passed over bridge	8:10 a. m.
Time freight No. 82 passed over bridge	8:25 a. m.
Draw span opened to allow boat to move upstream	11:20 a. m.
Girders in place on bearings	12:15 p. m.
Bracing bolted and temporary deck in place	3:40 p. m.
Train No. 400 passed over bridge	3:55 p. m.

A structural steel gang, consisting of a foreman and 5 men, began the preparatory work on September 9. The force was increased to 2 foremen and 13 men on September 22. The erection of the girders was begun on September 24 and was finished on October 5. The removal of the trusses was started on October 9 and completed on October 27. The installation of the permanent deck on the six new girders was finished on December 28.

The entire project was carried out with company forces under the general direction of B. R. Kulp, chief engineer. The design and fabrication of the girders, the construction of the piers and the scheme of erection were developed or carried out under the supervision of O. F. Dalstrom, engineer of bridges, who retired on August 31, 1941. The erection was carried out under the supervision of A. E. Bechtelheimer, engineer of bridges since September 1, 1941.

War's End Won't Stop Train Travel

Those who chant advance dirges over post-war passenger traffic fail to reflect that the train, if it limits itself to mass movement, can haul people more cheaply than any rival

By Max Goodsill

General Passenger Agent, Northern Pacific Railway

THE Iron Horse carries today what many think is his last great passenger load before the airplane takes over the transportation of people in the United States. With expanding capacities for manufacturing airships and with so many thousands of able men to run them, predictions for the future are quite general that trains are now surely seeing their best days and that the sky soon is destined to bear most of the passenger travel in this country.

This idea has just been boldly voiced in the December 5 *Railway Age* by W. A. Patterson, president of United Air Lines, who proves by arithmetic that heavy and low-value freight must stay on the ground but "in the field of passenger travel, the airplane may well take over a major share of the volume." A major share of 769,077,021 passengers per year is a lot of volume.

Considering this revolutionary prospect, I have noted herewith my own personal thoughts on the outlook. Admitting that the spotlight now is on the airplane which is changing the map of the world with its high stratosphere speeds, I still firmly believe that railroad passenger trains will solidly survive, and that the major share of Americans will continue to ride them for reasons which are chiefly economic and partly physical.

The Sad Story of the Early Thirties

The starched policies of the railroads have been softened by devastating competition and by the sad experience of the last quarter century. The year 1920 was the peak of railroad passenger traffic in this country: 1,122,963,000 people rode the American Iron Horse in that year, the average trip being 38.48 miles. Passengers paid 2.76 cents per mile, the railroads collecting $1,304,815,000. Automobiles and airplanes came in, railroads were slow to change, and train revenues from passengers declined to $329,816,000 in 1933—the rock-bottom year for the Iron Horse. Only 434,848,000 people bought railroad tickets in that gloomy year; they paid 2.02 cents per mile, and their average trip was 37.96 miles.

Since that time, newer, faster trains, and lower fares, have increased patronage for railroads. Airlines and buses gained too; the rapid acceptance of air transport by the American people being amazing enough to swell anybody's imagination. While railway officers were watching the young upstart, the air industry multiplied its passenger traffic six times, between 1932 and 1940. In 1941, America's domestic, international and territorial airlines carried 4,079,947 people—a splendid business but still far away from a "major share" of Americans who want to ride.

The year 1939 was not a particularly good year for passenger volume in the United States. Most years since 1891 have been better on the railroads; only a few have been lighter. Taking 1939 for a conservative example to represent reasonable anticipated volume on public carriers in the future, the total number of passengers was 454,032,000 on the railroads, 313,000,000 intercity riders on buses, 2,045,021 on planes—grand total 769,077,021. To accommodate this traffic, 24,300 railroad cars, 51,550 buses and 339 planes were required. With larger, up-to-date planes, the airways made a phenomenal record in 1941, needing only 362 units to double the number of people served. Making astronomical allowances for bigger, better and faster planes, it is conceivable that air carriers might find resources to multiply their equipment and plant and personnel 80 or more times in order to take over half, or a major share, of the passenger business of the United States. This is improbable physically even if people are going to be in that much of a hurry, or if the hundred-million sky market was here, which it isn't.

Surface Transport Costs Can Also Come Down

There are more people able to own Fords than Cadillacs. In the example year of 1939, travelers paid 1.84 cents per mile to ride on the railroad. Airlines appealed to a richer market, charging 5 cents per mile. Flying takes money. On big-volume operations, 2,500,000 miles, President Patterson of U. A. L. figures 70 cents per mile cost on his modern "Mainliners." Their present 21-passenger load at 5 cents per passenger per mile should pay a reasonable profit. Future technical advances will increase loads and reduce costs; maybe air trips will some day sell for 3 cents per mile. While this is going on, there will be comparative technical advances for ground transport.

The fact is that you cannot beat the railroads on land, in a contest of economy. An 80-passenger railroad coach can be hauled for 20 cents per mile, or less, before taxes. Even recognizing that railroads may have the heaviest taxes, highest wages and operating expenses they have ever faced, these will affect other forms of transport also, and railroads, if they will, can undersell all carriers except those using the seas. On a show-down, the passenger train cannot be squeezed out!

A Job for Each Transport Agency

Nor will airlines and buses be out. The inescapable conclusion is that the United States has living room for all known forms of transportation, each in its own place, and each at its own price. People in this country move around. In 1920, the average travel of every inhabitant of the United States was 500 miles in the year; in 1929, it was over 2,000 miles. In nine years, America's effec-

tive demand for travel quadrupled. In 1939 the American railroads performed the equivalent of carrying the entire population of 131,173,000 people a distance of 173 miles. Other forms of transport—autos, buses and planes—carried on from there. Everybody likes to travel. It is one of the American habits. Grandfathers recall when average people stayed home, seldom venturing beyond county seats; the lady who had been to Washington, and the family which had visited Yellowstone Park, were looked upon with some awe. Now, those who do not travel are exceptions. Business trips are the usual thing, vacation going-aways are almost as much a part of the year as Christmas. Once started, travel, like other pleasant habits, is hard to stop; holding the lid on it, as is being done today, will only increase desire. All forms of transportation will be rushed, when war ends. Railroad travel after World War I broke all records.

The *total* travel market after the war promises to expand greatly. Railways have no near competitors for safety—they *need* have none in comfort and thrift. Service is reasonably fast and can be quickened. With unprecedented demand, there is no reason why the railways should not have plenty of passengers—provided attention is confined to and concentrated on the kind of jobs that railways can perform economically. That is—big trains where there are people enough to fill them, leaving the retail trade to agencies which are better fitted to handle it.

When the present and the coming rush is over, the transportation industry will settle down to a long-term feud, the devil taking the hindmost. The hindmost could be the railroad but "it ain't necessarily so." Stratosphereways will have trim airliners of great size and power roaring across country, reaching large cities at unprecedented speeds. Sleek, new buses will connect all population centers with the big terminals. Railroads, using modern light materials for construction, and up-to-date technical skill for designs, will operate the most attractive trains this country has ever seen over the main part of America's 240,000 miles of track, drawing patronage from most of the 74,000 communities now served by steel rails.

What Factors Will Divide Patronage?

How will the public divide its patronage? The handsomest automobiles, refrigerators, pianos and cooking stoves have been drawing the most buyers in this country. Beauty will be weighed in choosing the vehicle for a trip. Travelers will also be influenced by comfort, convenience, safety, speed and cost, and, with the masses, the greatest of these is cost. With Diesel motors, 50-passenger buses may run for 25 to 30 cents per mile; using engineering triumphs of war days, 100-passenger stratoliners may go for 50 to 60 cents per mile, and trains hauling from eight to fifteen coaches may speed along at $1.25 to $1.75 per mile. Trains can't be as fast as planes, nor can they be as handy to crossroads and local communities as buses, but getting down to bedrock on price, trains can meet competition and continue to carry a majority of the common people. Nor will it take "a kick in the seat of their can'ts", as P. K. Thomajan says, to get railroad men into the modern merchandising mood—they are awakening.

In this spirit, President Ernest E. Norris, of the Southern Railway, speaking on post-war readjustments said "we can divine the savage competition that the railroads will face. . . . The railroads are going to lick the problems of tomorrow, the problems of depression, of competition, of dwindling revenues and inflexible expenses, of inequalities of different forms of transportation. They are going to win out, partly because they have what it takes to do the job; the inherent strength, the resourcefulness, the courage, the will, the talent." It will take what Mr. Norris says it has for the railroad industry to hold its 1939 or its present relative position among the nation's passenger carriers, because competitors are very young and very vigorous. They are not in the game to lose; their gains can be at the expense of the railroads, as they have largely been in the past, or they can be through exploration and development of the coming market, and here there is room for everybody to get theirs.

What Eastman Said in '35

When Joseph B. Eastman was Federal Coordinator of Transportation in 1935, with gentler powers than he now wields as Director of the Office of Defense Transportation, his report on passenger traffic spurred the Iron Horse to create a new travel market. "Without affecting other traffic," the Coordinator argued that the American travel market has by no means been fully explored, adding that if the railroads "design a more attractive service, offer it at a cheaper price, and promote its sale by modern methods, they should arouse a volume greater than formerly handled by them."

He declared that the vast majority of travelers are thrifty, so it is this majority that the railroads should go after," providing an economical mode of travel—"local service at 1½ cents per mile, and, for distance travelers, frequent, speedy, intercarrier limited service at a 2-cent basic fare; a reserved service at a 3-cent basic fare, including berth, and a limited amount of deluxe service at a 5-cent basic fare, including room and all incidentals."

Quantity discounts for families, traveling men, parties, lodges, schools and all-expense trips, train cruises and tours were also recommended as a field for railroads. Promote travel, the Co-ordinator advised, "vest exclusively in the Association of American Railroads: market research and analysis, design and prescription of service, schedules of routes, pricing, tariff making and publication; and division and clearing joint revenues. Charge the Association with sole responsibility for the re-creation of an American rail travel market, and specifically for a continuous, aggressive campaign of national and local advertising, good will, institutional, promotional and specific; and for the planning, conduct and supervision of the sale of passenger transportation."

Travel Market Still Not Thoroughly Probed

The railroads accepted and expanded some of the Federal Coordinator's recommendations and their passenger business steadily increased, but the exploration of the travel market in America, and the coordination of railroad merchandising has only begun. Other common carriers have their plans too, and the sensible thing will be to build the market together.

Railroad men are smart enough to know that the sky

will get long-hop travelers, who are in a hurry, and buses will collect local riders, who want handy pickups and deliveries. The field of the train lies in between. Experience has already proved that, except for suburban traffic, short-run and branch trains are not attractive in the American market and do not pull in the business. To catch a good train, people think nothing of motoring across country a couple of hours, which means 100 miles or more on a modern road. Private automobiles and buses will continue to displace branch-line passenger service. Long-distance, intercarrier, through trains remain for the railroads. They will speed between all great cities, with limited stops, no change of engines, little or not any intermediate switching in and out of cars, and with most exasperating terminal delays eliminated. I believe, mail express and high-value freight should move principally on separate trains.

Lower Prices for Volume Business

Passenger fares must be down for the masses. Dining cars, which grandly serve 6-course banquets, will be superseded by tavern-luncheon cars able to turn out many a tasty snack for light purses.

Tomorrow most passenger trains will not be individually designed and custom built. Standardization of equipment is necessary to reduce current estimates of $70,000 per car. Coaches used to cost $8,000, and, on a quantity, standardized production basis, should be built for not over four times that sum to give railroads a chance to operate for moderate fares and to offer more frequently changed models for public acceptance.

Trains will run somewhat, but not a lot, faster than today. There are 34 train runs in the United States at 75 miles per hour, and 1526 runs at 60 miles per hour and better. Price is more important than speed to the masses. Those who seek speed will fly. Trains can't run too fast and be smooth and safe. During the past ten years, one railroad passenger was killed for each 1,498,000,000 miles operated. It would take a person 2,850 years to cover such a distance by train, if he travels 60 miles per hour every hour of day and night and every day of each year. This is pretty safe, but none too safe for the masses. Speeds over 100 miles per hour, better be left for the air.

Airlines in the United States have made wonderful safety records, when one considers the risks they have to meet in takeoffs, speed flying and landings. For them to displace ground transportation entirely, or as fully as some people predict, it seems to me that laws of gravity must be more completely conquered than has so far been possible. Until this is done, transportation facilities on land must handle the main load.

Will Uncle Sam Have to Foot the Bill?

Will railroads be able to finance modernization of passenger services and other improvements? The point has been raised by President Roosevelt's National Resources Planning Board, which states the problem, and their recommendation to the President and Congress thus:

"The basic facilities for highway, waterway and air transport are publicly provided. A strong, insistent, and pervasive public demand by a transport-conscious people has resulted in a great development of these facilities and their progressive improvement and modernization in keeping with technological progress. Although these developments are necessarily brought to a halt in the war emergency, it is abundantly clear that, with the return of peace, the shackles will be broken and a transport-rationed people will demand and secure a vastly enlarged system of highways, airways, and to a lesser degree, waterways that will overshadow all the progress of the past.

"In sharp contrast, the privately-owned railway plant is in the main dependent for its modernization and improvement on access to private investment markets. No matter how antiquated these facilities may be; no matter how great the need for modernization, improvement and rebuilding; and no matter how imperative may be the national economic need for the resuscitating influence of these developments in time of growing unemployment, the decisions must rest with managers and investors who necessarily are confined to the limits set by private finance. In consequence, the railroads are barred from participation in public works and development programs, and likewise, they are excluded from public plans embracing physical coordination with other forms of transportation.

"Another condition stemming from the position of the privately owned railroad plant in a setting wherein all other basic general transport facilities are publicly provided is their unequal competitive position. In the lean years as well as the fat years, the railroads must carry a heavy burden of fixed charges, while at the same time their competitors operating over public ways are subject more to variable costs, which fluctuate with the volume of traffic.

"That these burdens have for many roads become unbearable is attested by the record of railroad bankruptcy and receivership.

Where Will the Capital Come From?

"And even in the lean years public investment in highways, airways and waterways grows apace, thus threatening the railroads with ever more and sharper competition. The net result of this condition has been increasingly to place railroad securities in the speculative classification. Under these circumstances there can be little assurance that capital funds will be forthcoming for a program of railway modernization and improvement commensurate with the national need in the post-war transition period.

"Logic and necessity suggest that the credit of the Federal Government must, by appropriate fiscal devices and under appropriate safeguards, be made available to the end that the formidable tasks of railway modernization and improvement may be included in public works programs aimed at upbuilding the country and at sustaining the national economy in the forthcoming difficult years of transition from war to peace."

A railroad view of an "appropriate fiscal device," in these premises, is not to put the railroads farther under the government thumb with credit from Washington, but to allow the rail carriers, which are now universally making money, to earmark enough of their present net income for the post-war modernization activities, which will be of such great advantage to our national economy.

"There only can the government ever be stable where the middle class exceeds one or both of the others."—ARISTOTLE.

"There is nothing makes a man suspect much, more than to know little: and therefore men should remedy suspicion, by procuring to know more, and not to keep their suspicions in smother."—BACON.

Ex Parte 148 Hearings Concluded

Railroads agree to put aside revenues for additions and betterments and debt reduction, but doubt 1942 net will be repeated as wartime costs keep growing

WASHINGTON, D. C.

THE net income received by the railroads in 1942 was exceptional, and is not likely to be repeated in 1943, nor in future war years, even though traffic may show increases over 1942, said Dr. Julius H. Parmelee, director of the Bureau of Railway Economics of the Association of American Railroads, in testimony presented by the railroads in the hearings in Ex Parte 148 reopened last week before Interstate Commerce Commission members Aitchison, Splawn and Mahaffie.

As reported in *Railway Age* of February 6, page 326, the hearings began February 2 in Washington, D. C. All of the first two days and most of the third were devoted to appearances of supporters of the position of Economic Stabilization Director Byrnes, Price Administrator Brown and others who petitioned for cancellation of the passenger fare and freight rate increases the commission authorized the railroads to put into effect early in 1942.

The OPA economist, Dr. Richard V. Gilbert—whose testimony was reported in these pages last week—was followed on the stand by Frederick V. Waugh of the federal Department of Agriculture, whose statistical exhibits were drafted to support the petition of that department, filed with the commission along with the Price Administrator's, for cancellation of the rate increases on agricultural products. Farmers are faced with rising labor and material costs that are imposing growing pressure on the price ceiling structure, said Mr. Waugh, and a railroad rate reduction would relieve this pressure substantially.

Under present conditions, the witness pointed out, returns on many agricultural products are not attractive enough to maintain production, and some corrective measures must be taken to improve the situation so acute shortages will not develop in essential farm products. Of various ways in which farm income might be increased, Mr. Waugh referred to government subsidies to farmers, an increase in prices paid by consumers for farm products, and a reduction in farm production and marketing costs. Of these the latter could be accomplished without disturbing the economic stabilization program, he said, by reducing freight rates on agricultural products. With their earnings and traffic at unprecedented levels, the railroads could easily afford to make this cut, the Department of Agriculture's witness asserted. The other possible corrective actions, on the other hand, he considered to have inflationary tendencies not desirable in a wartime economy.

Coal Revenues Gains Uneven

The federal bituminous coal consumers' counsel also was represented among supporters of the OPA petition for a rate reduction, and the chief of his division of economics and statistics, Raymond E. Kerr, appeared at the hearings to offer a statistical exhibit which he described as proof that the rate increase on coal authorized in Ex Parte 148 "is not now necessary to enable the carriers to earn revenues commensurate with those earned in 1941." The revenue earned in 1942 per ton of bituminous coal originated by Class I railroads has increased "substantially" over the three previous years, he said, and since the rate increases became effective has been "substantially larger," in comparison with the same 1941 period, than the rate increase alone would have been responsible for. The witness declared this shows that the tonnage handled is not only larger, but is moving longer distances on higher rates than are usual.

Trying to Make a Case for Coal

Segregating revenue reports of Class I railroads according to their relative importance as bituminous carriers, the coal consumers' counsel's statistician developed the information that during the first 9 months of 1942 the gains in bituminous coal revenues were in inverse proportion to the importance of coal in the railroad's revenue picture. The "profits" before income taxes of major coal carrying railroads were 57 per cent greater in the 1942 period than in the same 9 months of 1941, he said, while the "profits" before income taxes of all Class I roads in the same months increased 121 per cent.

Cross examination of Mr. Kerr brought out some information about increases in railroad fuel prices which have become effective since the railroad rate increases were made, including the coal prices allowed and pending already in 1943, which result, the witness explained, from the necessity of absorbing added labor costs due to running the mines on a six-day week at time-and-a-half wages for the sixth day.

After the testimony of these representatives of federal government agencies was concluded evidence and exhibits were offered by spokesmen for a number of state commissions and shippers organizations supporting as far as their direct interests were involved the OPA's petition for cancellation of the 1942 rail rate increases. Some of the state regulatory bodies so represented, however, gave only qualified support to this position, arguing only for concessions for long-haul agricultural traffic or for freight increases in terms of cents per unit weight rather than on a percentage basis.

The presentations of the state commission witnesses were made in the main hearing room on February 4, while shipper organizations were heard at the same time by Examiner Paul O. Carter, sitting in Commissioner Aitchison's library. Among the state commissions whose views were put in the record were those of Texas, California, Washington, North Dakota, South Dakota, Illinois, New York, Alabama, Georgia, Florida, Louisiana, Mississippi, North Carolina, Tennessee, Oregon, Montana, Minnesota and Oklahoma. The New York and Illinois witnesses particularly emphasized their opposition to increasing intra-state commutation fares in proportion to the interstate fare increases allowed in Ex Parte 148.

Organizations supporting the petition for cancellation

of the freight rate increases included the National Grange, Pacific Fruit Exchange, California Deciduous Growers League, Structural Clay Products Institute, Eastern Meat Packers Association, American Meat Institute, American National Livestock Association, Maple Flooring Manufactruers Association, Growers and Shippers League of Florida, Western Growers Protective Association, National Cotton Council of America, and National League of Wholesale Fresh Fruit and Vegetable Distributors.

Railroads Accept Segregation Plan

Late in the afternoon of February 4 the railroads began their case for leaving existing freight rate and passenger fare levels unchanged. Before the first railroad witness took the stand, however, Judge R. V. Fletcher, vice-president of the Association of American Railroads, read a statement expressing the railroads' attitude toward the commission's request for opinions on the "desirability, feasibility and legality" of a commission order setting aside the proceeds of the 1942 rate increases for betterments and debt reduction. This statement, he explained, represented the views of the Class I roads and also those of the American Short Line Railroad Association.

"The railroads are in entire accord with the general purpose which seems to underlie the request of the commission," he said. "In other words, the railroads are of the view that at the present time, when their earnings are relatively high, compared with those of the past and those which are in prospect for the future, all reasonable provision should be made by them for reduction of debt, expenditure for additions and betterments and, generally, for making provision against the time of need. Applicants, however, with great deference, submit that a requirement of the kind mentioned should not be made a condition for continuing in effect the increases at issue. . . . We believe sincerely that voluntary action will bring about better results than if the matter is covered by an order of the commission."

The railroads "do not question the commission's authority to impose the suggested requirements," the statement emphasized. "On the question of feasibility, it should be borne in mind that it is impossible, under present conditions, due to shortage in men and materials, to maintain the properties as they should be maintained. We are facing an unpredictable future. Never has it been more desirable that the cash position of the railroads should be strong. It is clear that the post-war period will call for large expenditures for deferred maintenance, for rehabilitating the property, renewing and modernizing equipment, and absorbing the shock which the transition from war to peace will almost certainly entail. The public interest, therefore, would seem to demand the creation of adequate reserves, as well as the expenditure of immediate sums for additions and betterments and debt reduction.

Arbitrary Ruling Undesirable

"We are assuming that when we speak of debts which are to be reduced, there would be included equipment obligations, maturities and sinking fund requirements, as well as other debt requirements. Furthermore, I take it that we may safely assume that the Commission would not expect the railroads, in every case, to expend funds for additions and betterments at times when men and materials cannot be obtained, nor should they be expected to reduce debt arbitrarily at a time when railroad securities are advancing in price, so that they cannot be acquired upon reasonably favorable terms. The carriers should be permitted to select periods when the railroad dollar will go the farthest in improving the property and reducing debt."

Several other factors affect the feasibility of such a requirement, Judge Fletcher said. One is the situation of "so-called bankrupt railroads" that have little or no control over the use made of funds that might be applied to debt retirement. Another is the "obvious fact" that close to 50 per cent of the revenue under discussion, on the average, will be paid to the government in taxes. "It would seem, therefore, that whatever conclusion is finally reached on the subject, not more than one-half of such increases should be earmarked." The wartime shortage of manpower would make it a "well nigh intolerable" burden to make accurate detailed computations of the amounts involved, he added, and the railroads think their accountants and the commission's can work out a plan to accomplish the desired purpose without requiring "meticulous and accurate accounting."

Finally, continued Judge Fletcher, "we venture to suggest that in the event the commission reaches the conclusion that sound policy dictates the adoption of a policy by the commission of the tenor we have been discussing, no actual order will be necessary. An admonition in the commission's report, clearly setting forth its views, will be faithfully observed. I am authorized to assert, and I do now assert of record, that such an admonition will be complied with by the applicants, who will be perfectly willing to report from time to time to the commission as to how such admonition is being observed. We do earnestly urge the commission, however, to qualify any statement it may make on the subject to take care of the suggestions which we have discussed."

Taxes and Price Levels Rising

Dr. Parmelee, the first railroad witness, devoted most of his direct testimony to an explanation of the statistical exhibit which he offered to support his opinion that the 1942 income figures are not likely to be repeated. If the roads had performed all the service they did perform in 1942 at present wage levels, and also at present levels of taxation, prices and depreciation, he said, they would have received for this greatly increased use of their plant and equipment, with its added wear and tear, little more in net earnings than in the previous year.

The railroads must do business under current price levels and conditions, the witness emphasized. On the volume of business done in 1942 federal taxes on the higher 1943 basis would exceed actual tax payments in 1942 by $306 million. In 1943 materials, supplies and fuel bought in earlier years and used up at an increasingly rapid rate in meeting wartime demands for transportation must be replaced with supplies bought at present higher prices, which, on the basis of business actually done in 1942, would involve an added expense of $98 million. Applying the present rate of depreciation to the property in use in 1942 means another $114 million of additional expense this year, Dr. Parmelee added. The effect of these higher current costs, if applied to the whole year 1942, he said, would have been to bring down the apparent net income the railroads would have received in that year if the rate increases had been in force all through the year from about $960 million to some $570 million, or only $70 million more than the actual income in 1941, although a greatly increased amount of service was rendered.

"The apparent earnings of 1942, to which objection is

made in this case, are not due to excessive charges," the witness declared, adding that the average charge paid by the public for hauling one ton one mile is 0.93 cent, less than it has been for over 20 years.

Summarizing his conclusions, Dr. Parmelee, while declining to make any definite long-range predictions, expressed the opinion that there would probably be some further increases in traffic and revenues, assuming that the rate level is unchanged, although expenses could be expected to increase more rapidly than revenues from this point on, as the railroads have about reached the "saturation point" of traffic density, beyond which operations are increasingly less efficient. This means, he said, that a 10 per cent traffic increase, if realized, would add "much less" than 10 per cent to the railroads' net revenue.

At the suggestion of J. M. Souby, general solicitor of the Association of American Railroads, Dr. Parmelee commented on some of the statistical exhibits offered in the case by the OPA's economic staff. Among other points, he showed that the OPA estimate of passenger traffic for December, 1942, on which their entire 1943 prediction was based, is too large by 12½ per cent according to the actual revenue figures for the month, while partial revenue results for January, 1943, passenger business indicate an increase over last year of about 80 per cent, where the OPA predicts an increase of 118 per cent.

The OPA freight traffic predictions for 1943, which come out to an increase of 17.2 per cent in ton-miles over the 1942 results, are actually the result of piling one estimate on top of another, Dr. Parmelee pointed out, as the Federal Reserve Board's index for 1943 industrial activity is first predicted, and the relation of that index to the freight movement is then estimated. "Anyone who undertakes to foresee the future month by month is a brave soul," the witness said in this connection.

Lawyer Swiren Is Rebuked

In the course of cross-examination of Dr. Parmelee the OPA counsel, Max Swiren, endeavored to and eventually did introduce into the record portions of certain confidential estimates of prospects for railroad business made by Dr. Parmelee for the Office of Defense Transportation in July, 1942, but not until Commissioner Aitchison had challenged the ethics of the procedure. Selecting figures from this document, Mr. Swiren endeavored to show that Dr. Parmelee had made rather definite traffic forecasts, and that these predictions had proved to be too conservative, but the witness was able to point out that his estimates of demands likely to be made for railroad service were expressed in more than one method of measurement and for several different periods of time, and that many of the predictions were much closer to the actual results than the selections emphasized by Mr. Swiren.

Dr. Parmelee's testimony extended through most of the morning session on February 5. In the afternoon, following a brief statement of the Detroit & Cleveland Navigation Company's support of the railroads' position, Roy B. White, president of the Baltimore & Ohio, and J. L. Beven, president of the Illinois Central, appeared to present the viewpoint of the eastern and southern railroads, respectively, and to give somewhat detailed accounts of the effects of the rate increases and wartime demands for service on their own lines.

The outstanding lesson in transportation economics learned from the experience of World War I, Mr. White said, "is that the public interest would be badly served if railroads are required during a war period to wear out their plant and not be in a position to rehabilitate it quickly after the war. The funds necessary to do this, as well as to meet the heavy requirements for maintenance and equipment during the war years, must come out of revenues."

How About Debt Retirement?

Continuing the rate increases allowed in Ex Parte 148 is essential, Mr. White added, if the railroads are to carry out the general program of retiring debt suggested by the commission in its 1941 annual report. Such reduction of indebtedness was described by President Roosevelt in his April 27, 1942, message to Congress as one point in "our present national economic policy," he pointed out.

In discussing the so-called inflationary effects of railroad rates, the witness remarked that "instead of rail revenue per unit of service increasing and being inflationary, as contended by the OPA, quite the opposite is true. The trend over recent years has been downward until in 1942, even with the increases" allowed then by the commission, the average revenue received by the roads is the lowest for many years, he said.

Mr. Swiren began his cross-examination of Mr. White by inquiring if he had, in arguing for maintenance of the current rate level, considered how this position might affect the economic stabilization program. The witness answered that he had not considered how the railroads fit into the economic stabilization program so much as how they fit into the war effort. At another point, referring to a question about the effect of rates on the price ceiling structure, Mr. White said he had to "confess inexperience" in this field. Mr. Swiren pressed the witness for an estimate of railroad traffic for the next three years, but was told that it was difficult enough to forecast for three months in advance. During the discussion that followed Commissioner Aitchison drew from the OPA counsel an acknowledgment that it is the duty of the railroads to prepare for a long war, upon which it was stipulated that the commission would take that attitude in considering the present case.

Mr. Beven devoted a considerable part of his testimony to an argument for rate-making policies that would restore faith and confidence in railroad credit. The story of rail transportation in this time of war would be a sorry one, he said, in contrast to the actual situation, if the railroads had not provided additions and betterments out of earnings in the past twenty years that made it possible for them to "about treble the output of transportation in 1942 as compared with the low of depression years."

Railroad Credit Needs Consideration

"The use of our plant in this time of tremendous traffic has exceeded its restoration," he pointed out, "and I believe that this condition will continue at an accelerating rate as long as the war continues. Borrowing from experience in the first World War, the probable subnormal condition of the plant after the war must have a high place in consideration of revenues for the future."

Referring specifically to Illinois Central conditions, Mr. Beven remarked that about 45 per cent of that road's increased freight revenue in 1942 came from the increase in petroleum traffic, "a thin foundation" which barges and pipelines will soon replace.

The morning of February 6 was occupied by the di-

rect testimony and cross-examination of Ralph Budd, president of the Chicago, Burlington & Quincy and spokesman for the western railroads in the proceedings. "The cost of poor transportation would be much more than the amount of money involved in this case," he said. "There is no cheaper way to secure indispensable railway service than by preserving the earnings and credit of the carriers. We ought not to gamble with such a vital implement of war, and we must not gamble on its successful operation" in the post-war period.

"By the end of the war," he continued, the railroads will need a large amount of new equipment. They should be able to take advantage of new technological developments and to provide employment for returning soldiers and released war workers. The problem of financing such a program of modernization should be considered now. Replacements ought to be financed from earnings of the plant now being worn out.

"It would be unfortunate if, after the war with a reduced volume of traffic, the railroads should be compelled to seek increased rates to cover the deferred maintenance and replacments made necessary by present heavy wear on their plants, and the improvements which will be necessary. The difficulty of increasing rates during periods of declining traffic makes such an approach tragically unsound. The only alternative is to permit the railroads to earn the money needed for the maintenance, replacements and improvements of their plants which cannot now be made because of shortages in materials.

"The principles here involved transcend even the great interest of the nation in sound transportation. The whole system of private enterprise may be threatened. If this important industry is to be denied an opportunity to prepare for the inevitable dislocations of the post-war period, and is thus forced to emerge from its war work in a dilapidated condition, the spectre of government intervention may materialize, not only for the railroads but also for other important elements in our industrial economy."

One-Year Basis of Rate-Making Unfair

If the rate of return earned by the western lines in 1942 is above the rate considered "fair," Mr. Budd said in answer to a question, it would not follow that rates ought at once to be reduced. Rates cannot be made on a one year basis, he asserted, if the credit of the railroads is to be maintained. "The manufacture of cheap transportation must precede selling it," he insisted. It would be very hazardous, he declared, to use the railroads as an instrument to "stabilize the domestic economy" at the risk of a breakdown in their contribution to the war.

During cross-examination by Mr. Swiren, Mr. Budd referred to the OPA predictions based on anticipated industrial production. Such figures cannot be translated into future transportation requirements, he said, because it is not possible to know what course the war will take, because it is necessary to know not only the volume of production but where the products will go before predicting the transportation service required to move them, and because the effect of the weather on crop yields is highly uncertain.

The hearings were completed on the afternoon of February 6. Meanwhile a separate hearing by Examiner Carter enabled a number of industrial and shipper organizations in general supporting the railroad position in the case to get their views into the record. Among them were the Baltimore, Md., Association of Commerce, the Chamber of Commerce and Board of Trade of Philadelphia, Pa., the Chamber of Commerce of Pittsburgh, Pa., and Cleveland, Ohio, the Board of Trade of Kansas City, Mo., the New Orleans, La., Joint Traffic Bureau, the Chain Store Traffic League, the Railroad Security Owners Association, the National Industrial Traffic League, and the Associated Industries of Massachusetts.

Rail Revenues Overstated

Two witnesses for the Class I railroads who appeared briefly on the stand in the afternoon session were A. F. Cleveland, vice-president of the Association of American Railroads, and Hugh W. Siddall, chairman of the Trans-Continental Passenger and Western Passenger Associations, both of whom presented formal statements that were copied into the record of the case without oral reading. Mr. Cleveland developed the point that the railroads have made many rate reductions since the Ex Parte 148 increases became effective, especially those made to meet wartime emergencies such as the halt in coastal shipping and the consequent dislocation of the oil and coal traffic. Moreover, he pointed out, the apparent revenues reported by the roads in 1942 may not be realized, because land grant rates may be applied retroactively to a large volume of government freight which the railroads do not consider entitled to such rates.

Mr. Siddall's statement was devoted to the passenger fare aspects of the case. Pointing out that the railroads are already "exerting every effort" to induce people to travel as little as possible, he said a fare reduction at this time would be "most unfortunate" because it probably would stimulate increased demand for passenger service that the railroads are not in a position to meet. The expensive operating consequences of troop movements and the special furlough fares arranged for service men were stressed as wartime conditions that affect comparisons with pre-war passenger revenues.

As their final witness, the Class I railroads called a Harvard Ph. D. to the stand to expound an economic philosophy at variance with that of the OPA's Dr. Gilbert. This witness, Dr. A. J. Hettinger, Jr., vice-president of General American Investors Company of New York, and a former Harvard instructor, was asked by Mr. Souby if all economists subscribed to the definition of inflation offered by Dr. Gilbert. In reply, he said he had never discovered a unanimity of opinion among economists on any subject. "Competitive spending is the basis of inflation," he went on to say, and inflationary tendencies are most pronounced when there is competitive spending between the government and civilians or among civilians under conditions of scarcity of goods and services.

OPA Uses Figures to Mislead

That part of the proceeds of the 1942 rate increases that is used for taxes would not result in competitive spending, he remarked, and neither would the portion used to pay fixed charges and to amortize debt. The part used for additions and betterments, if any, that are not essential to the war effort would contribute to competitive spending, on the other hand, he added, and so would be inflationary, as would any parts used for increasing wages or increasing dividend payments, depending on what use the individual receiver made of such increased payments. Theoretically, he agreed, resumption of interest payments on defaulted bonds would have inflationary characteristics.

Mr. Souby then asked Dr. Hettinger to comment on

the statistical table prepared by the OPA which indicated that the railroads' 1942 "profit before federal income taxes" was 1922 per cent of the 1936-39 average, a difference far greater than that reported by other large industrial groups. As far as statistical method is concerned the table is consistent, the witness said, but it is a "special purpose" table, "misleading and unsound," which presents a picture that cannot be sustained. If railroad average annual fixed charges in the 1936-39 period had been only $100 million more than they were the table could not have been prepared, he pointed out, because there would have been no profits at all on which to base a comparison.

J. H. Huntt, secretary-treasurer of the American Short Line Railroad Association, presented a statement supporting the position of the Class I roads. This statement was put into the record, and Mr. Huntt was excused without cross-examination. Truck operators supported the railroads' position.

Arguments of Counsel

Under the procedure ordered for this case by the commission, counsel were allowed opportunity for oral argument but no briefs were received. On February 9, therefore, argument was begun before the full commission and the co-operating committee of state commissioners. Altogether about 15 hours was assigned for argument, including rebuttal, by some 29 attorneys, extending over February 9, 10 and 11. Speaking for the railroads were Judge R. V. Fletcher and J. M. Souby for the Class I lines, and N. E. Morehouse for the Chicago & North Western's interest in the commutation fare aspect of the case.

The government agencies petitioning for revocation of the 1942 rate increase were represented by Max Swiren, speaking for the Price Administrator and the Economic Stabilization Director, J. K. Knudson for the Department of Agriculture, and George Bronz for the coal consumers' counsel. A number of shipper organizations were individually represented in the argument, as were several state commissions, though not all of these commissions expressed unqualified support of the OPA position.

Stating that the railroads' 1942 earnings were "phenomenal," while their 1943 earnings would be "supercolossal," Mr. Swiren began his argument with the declaration that this rate case represents the crucial battle in defense of the whole economic stabilization program. "Congress has issued to the Interstate Commerce Commission an unyielding mandate to enforce the national stabilization policy," the OPA counsel exclaimed at one point, after Commissioner Aitchison had inquired what parts of the Transportation Act of 1940 the speaker had in mind when he said that previously adopted economic standards must yield to the dominance of economic stabilization.

The speaker's argument was repeatedly interrupted by questions from members of the commission, who pressed him for definitions of the OPA attitude on a variety of points. In his replies Mr. Swiren conceded that reduced passenger fares might stimulate travel; if they did, he said, the government then could ration travel. Some "sub-marginal" railroads might be adversely affected by revocation of the rate increases, he admitted; if they were, they should be subsidized by the government, provided they were essential to the war effort, or should seek "special treatment" from the commission.

Because the railroads' cash and quick assets "in most instances" is twice the 1929 level, because the emergency predicted by the railroads when they sought rate increases a year ago "never materialized," and because their "profits" would still be "phenomenal" if the proceeds of the rate increases were deducted, the ability of the railroads to serve the war effort, Mr. Swiren declared, would not be impaired by revocation of the 1942 increases.

OPA Has No "Oracular" Status

Mr. Souby's argument was interrupted by adjournment on February 10, but in the first portion of it he developed the contention that the commission itself, and more particularly the principles and standards established by the commission over many years, are "on trial" in this case. As long ago as 1915, he said, the commission established a principle it has adhered to, that is, that "a reasonable rate is one that takes into account both the lean years and the fat years." The story of the railroads' "alleged affluence," the subject of exhibits and testimony in this case, is much shorter, said Mr. Souby, than the "annals of their poverty" with which the commission has been burdened through many years.

It is the commission's duty, he declared, to say what effect the economic stabilization policy has on the statutes under which it acts, and it has no obligation to accept the OPA's judgment in that matter. The OPA, he argued, in dealing with price regulation has ignored completely the distinctions between industry devoted to public service and industry devoted to the production of tangible commodities, but the I. C. C. cannot ignore them.

Judge Fletcher's argument on February 10 was devoted to broad questions of law and policy which he asked the commission to consider. The possible outcomes of pending or proposed railway wage increases should not enter into this case, he said. Essentially, the government agencies petitioning for a revocation of the increases had argued two points, he contended: first, that the revenues earned by the railroads in 1942 were greater than they had expected and predicted; and second, that the government's policy on inflation has been clarified since the rate increases were authorized.

As to the 1942 revenues, the railroad counsel pointed out that the commission's order of March 2, 1942, allowing the increases, indicated that it was then aware of the fact that these revenues would exceed the estimates put into the record in St. Louis. Nevertheless the commission considered the increases justified, and the record now shows, he added, that the revenues resulting were in fact not equal to the added wage costs borne by the railroads in 1942, to meet which they were originally sought.

Has 1940 Statute Been Repealed?

The principle of inflation control argued by the OPA is essentially one of law, Judge Fletcher suggested, as it affects the commission's attitude in this case. The question is, he said, "Have the injunctions of the Interstate Commerce Act and the Transportation Act of 1940 been swept into the discard by the Economic Stabilization Act of October 2, 1942?"

"Inflation should be controlled," he continued, "but inflation is not the only problem that confronts the commission." The process of inflation control must not stop production, and it must not interfere with the efficiency of any transportation agency. The Stabilization Act directs that prices be stabilized as of September 15, 1942, he pointed out, and a rate reduction, with its disturbing effect on the economy, would be contrary to the purpose, theory and spirit of that statute.

Railroads-in-War News

Pork-Barrel Efforts Go on, Despite War

Repeal of Florida barge canal is resisted by perennial waterway fans

Discussion in the House of Representatives last week of a bill (H. R. 1669) introduced by Representative Dondero, Republican of Michigan, "to repeal the provisions of law authorizing the construction of a barge canal across Florida," brought forth some talk about the cost of the proposed waterway as compared with government expenditures to reimburse oil shippers for the difference between rail rates and what had been their normal transport costs via coastwise tankers.

The comparisons were made in a February 4 speech by Representative Mansfield, Democrat of Texas and chairman of the House committee on rivers and harbors. He gave the estimated cost of the barge canal at $44,000,000, and said that 2,286 wooden barges, 1,143 steel barges, and 1,170 tugboats would cost another $260,550,000. These figures he compared with costs of the reimbursements to rail shippers of oil, which he said would become "$400,000,000 annually" if daily deliveries to the East-coast area reached 900,000 barrels as predicted recently by J. J. Pelley, president of the Association of American Railroads. The December payments were on a basis of "more than $250,000,000 annually" Mr. Mansfield said.

At the same time Mr. Mansfield conceded that in the oil movement the railroads "have done a great work"; and that they "have also succeeded in moving millions of tons of other war materials for which they have received no public acclamation, although the accomplishment was equally meritorious." He conceded also that the railroads could not afford to haul the oil for less than the present rates, this statement being made in response to a question from Representative Culkin, Republican of New York, who called the reimbursements to the oil shippers a "subsidy now going to the railroads."

It was Mr. Mansfield's view that the costs of these reimbursements would be eliminated "in a comparatively short time" if the Florida canal were built. It was brought out, however, that the Chief of Engineers had estimated that it would take three years to build the waterway, and that he was sticking to that estimate; although Mr. Mansfield and other proponents of the project cited other authorities who had given estimates of a year or less.

The discussion began on the day before Mr. Mansfield spoke, when Mr. Dondero argued in favor of his repealer. "The time has come," he said, "when we must clearly register our disapproval of this pork-barrel measure. It is neither practical nor essential and is intended as a door opener for the Florida ship canal." The latter was the original proposal, which was modified to a "barge canal" in the authorization measure.

New England Coal Shipments

Following the end of the strike, all-rail anthracite coal shipments into New England rose to 2,368 cars or approximately 118,400 tons in the week ended January 30, according to Solid Fuels Coordinator Ickes. This was the highest point since the week ended December 5, 1942, and compares with 2,199 cars or 109,950 tons in the preceding week.

Meanwhile bituminous shipments at 3,869 cars or 212,795 tons had dropped slightly, being off 79 cars or 4,345 tons.

Land-Grant Bill

Senator Truman, Democrat of Missouri, has introduced "by request" S. 638 to amend the Transportation Act of 1940 to define the character of military or naval property which may be transported at land-grant rates. The bill would stipulate that "the term 'military or naval property' means (1) articles and materials described as arms, ammunition, and implements of war in Proclamation Numbered 2237, promulgated May 4, 1937, and (2) supplies and equipment transported along with or in connection with the movement of members of the military or naval forces."

Controlled Materials Plan Explained to Eastern Car Foremen

D. W. Odiorne, chief rolling stock section, transportation equipment division, War Production Board, spoke concerning the subject of priorities, the controlled materials plan, recommended materials and plans for existing car equipment before the meeting of the Eastern Car Foremen's Association which was held in the Engineering Societies building, New York, on February 5. Mr. Odiorne made clear to the largest gathering of members that has attended a meeting in recent years the plans which are being followed in the allocation of available supplies of materials for new car construction and for car repairs. He illustrated, by the use of photographs, a possible estimated saving of 25,000 tons of critical steel a month through the adoption of methods of patch repairs, particularly to open-top equipment. He also indicated that the extension of the use of wood in place of steel would be required wherever possible.

Canada's Officials Riding Coaches

Parlor cars pulled off temporarily to improve fuel handling

Because of what are deemed to be insuperable policing problems, neither the Canadian railways nor the Dominion government will attempt definite rationing of passenger rail travel, although they came close to it about two weeks ago when the Transport Controller at Ottawa issued a "directive" to the railways—not a flat prohibition or order—to restrict such traffic for a given period of two or three weeks, which has now been extended to the end of February.

The railways were instructed to limit passenger train operations in the provinces of Ontario and Quebec to the regular scheduled trains and to operate not more than one additional section of a train, if for special reasons this was found to be necessary. No parlor cars were to be operated between Montreal and Toronto, Montreal and Ottawa, and Ottawa and Toronto, and in other areas parlor cars were to be limited only to those previously operated—no extra parlor cars to be permitted.

Only coaches were to be utilized on the day trains in the Montreal, Toronto and Ottawa areas and on the night trains operating in the same area sleeping cars were restricted to those regularly operated, extras to be permitted only if a second section of any train became necessary.

It was explained by the Transport Controller that a "bottleneck" had developed on Eastern lines, that coal and other vital supplies were not moving steadily and that the unusually severe winter had made fuel supplies critical.

For the primary purpose of getting essential freight moved, the railways were asked to bar parlor car use and also to suspend for that period railway employees' passes. The traffic reduction that would be effected by this directive, it was believed, would assist in the movement of freight.

A sidelight on this parlor car order is that government officials and the large number of dollar-a-year men from business and industry who are now employed in the Dominion government's war set-up are obliged to ride in coaches for the restrictive period.

The trains between Ottawa and Montreal and between Ottawa and Toronto during week-ends have been forced to run in two or three sections because of the

large number of parlor cars ordered to accommodate the war officials.

January Export Traffic

Cars of export freight other than grain or coal unloaded at Atlantic, Gulf and Pacific ports in January this year totaled 74,884 cars compared with 63,073 in January, 1942, according to the Association of American Railroads. Cars of grain for export unloaded in January, this year, at these ports totaled 2,411 cars compared with 3,663 in the same month last year.

"This traffic is being handled with no serious congestion, due to the continued cooperation of all concerned, particularly the steamship lines, exporters and shippers," the A. A. R. said.

WPB Official Urges Steel Industry to Use Waterways

B. H. Taylor, deputy director of transportation of the War Production Board, last week urged the steel industry to "use the inland waterways whenever possible as a means of reducing the burdens placed on rail carriers," according to the WPB press release reporting on the monthly meeting of the Steel Industry Advisory Committee.

Mr. Taylor made his plea after "pointing out that it is likely that the railroads of the country will be called upon to carry even more traffic this year than during 1942—when all records were broken." He also urged that "traffic and transportation executives of all companies continue their efforts at reducing excessive cross and long hauling."

Shortage of Railroad Watches

"Anyone having a railroad watch which he does not use for essential purposes can contribute to the war effort by selling it for railroad use," said a February 10 appeal from the Consumers Durable Goods Division of the War Production Board. The appeal was issued following discussions of the problems with the Railroad Watch Manufacturers Advisory Committee.

The statement said that anyone willing to sell his railroad watch should take it to the nearest retail jeweler, who will direct him to the local railroad watch inspector, if the jeweler himself does not act in that capacity. Or necessary information may be obtained upon inquiry addressed to the Watch and Clock Unit of the Consumers Durable Goods Division, WPB, Washington, D. C.

Increased Coal Prices

Making good on its October, 1942, promise to approve such adjustments as were necessary "to put into operation the longer work week to meet wartime demands," the Office of Price Administration has recently been issuing schedules with higher maximum prices for bituminous coal. The new ceilings reflect "higher production costs involving the extension of the 35-hour week to six days and other operational increases."

They are being set up for each producing district, with an over-all range of increases from about 15 cents to 60 cents a ton. The latter, however, is the increase authorized in District No. 20 (Utah) for size No. 6, which has recently been developed for use by the Army. The new ceilings generally reflect "approximate increases in average mine realization" of from 18 to 23 cents a ton.

Shipments of Canned Foods Under ODT Order 18

Shippers "who must move canned foods to reach wholesalers and retailers in time for the canned goods 'freeze,' in advance of rationing, but have insufficient stocks to make up a carload of 65,000 lb." have recourse to the exemption provisions of the Office of Defense Transportation's General Order 18, the maximum loading order, the Office of Price Administration advised in a statement issued February 8.

The same statement, however, said that "ODT officials" had "cautioned" that 'such exemption would apply only in cases where shippers had made every effort to move goods in carload lots of 65,000 lb." In other words, "the exemption privilege was to be used only as a last resort," and shippers availing themselves of it "should be prepared to prove that such action was necessary under existing government limitation orders."

Interpretation of WPB's General Transportation Order

The War Production Board's Director General of Operations, Curtis E. Calder, on February 9 issued an official interpretation of "two debated points" in General Transportation Order T-1 which was issued January 30, as noted in the *Railway Age* of February 6, page 330.

The first point relates to exemptions granted to Army and Navy shipments by the order, which controls the use of tank cars and tank trucks for the movement of all commodities except petroleum and its products. The ruling is that the exemption does not apply with respect to shipments of materials on the order's lists 1 and 2. The second part of the interpretation defines mileage as used in the order as "the shortest available published rail tariff route, whether or not the particular shipment is billed or transported over such route."

Mexican Rolling Stock Made Immune from Seizure

Acting "to remove an important bottleneck in the transportation of materials from Mexico to the United States," the Treasury Department on February 4 issued regulations barring all legal and other proceedings "which might interfere with the free and unrestricted use and operation of Mexican railroad equipment within the United States." The regulations are embodied in General Ruling No. 15 issued pursuant to section 5(b) of the Trading with the Enemy Act, as amended by the First War Powers Act, 1941.

They accord the Mexican rolling stock immunity against claimants seeking to attach or otherwise seize such property. Moreover, "no legal, equitable or possessory interest can be obtained in such rolling stock by virtue of any judicial process unless a Treasury license is first obtained." The immunity will not, however, apply to service and repair charges and other claims arising on and after the date of the ruling out of the operation within the United States of the rolling stock involved.

The Treasury Department announcement said that "a large volume" of war materials has heretofore been transferred at the border from Mexican to United States cars. It also said that the ruling "works no hardship on American creditors," since the Mexican equipment would not otherwise be brought into the United States.

As noted in the *Railway Age* of February 6, page 330, the Interstate Commerce Commission on January 30 issued Service Orders Nos. 106 and 107 to effect the prompt return from Mexico of freight cars owned by United States railroads.

Conn and Watkins Discuss Railroads After the War

Donald Conn, vice-president of the Transportation Association of America, and Ralph J. Watkins, assistant director of the National Resources Planning Board, discussed railroads after the war at a meeting of the Junior Traffic Club of Chicago on February 4. In presenting the subject, each answered questions the other had propounded and submitted prior to the meeting. On the subject of post-war planning, Mr. Conn contended that expansion and deferred maintenance of the railroads can be accomplished with private capital, whereas Mr. Watkins contended that government funds will be required. While government ownership is one method under which railroads can be expanded and rehabilitated, he said, another is joint financing and control by government and private capital.

East Coast Oil Movement

Tank car shipments of petroleum and its products to the East-coast area during the week ended January 30 averaged 796,458 barrels daily, a decrease of 2,094 barrels per day as compared with the previous week, according to Petroleum Administrator Ickes. He explained that "some decrease was anticipated" because his recent order prohibiting the use of tank cars for shipments of gasoline into East-coast states "required some readjustments and rescheduling of tank cars."

Meanwhile, from the War Production Board has come an announcement that "approximately 700 additional tank cars are being released for the transportation of petroleum and petroleum products." It was made by Dr. W. Y. Elliott, director of WPB's Stockpiling and Transportation Division, who explained that the equipment will be diverted from the wine industry under arrangements carried out by the Office of Defense Transportation

"Actually, a 'double shuffle' will be employed," Dr. Elliott said, "by which the wine cars will be transferred to other products, largely industrial alcohol, releasing alcohol cars for petroleum." The wine industry "is shifting its marketing system from tank cars to barrel and bottle shipments," although it still has left "77 con-

verted refrigerator cars which contain six 1,000-gallon wooden tanks each" and which "are not suitable for the hauling of either petroleum or alcohol." The shifts of cars, the WPB statement said, are being carried out under WPB "priority directives of use to the Office of Defense Transportation."

In addition to giving the average daily deliveries by tank car, Administrator Ickes' review of the January 30 week revealed that box car shipments of kerosene to New England in drums had averaged 8,266 barrels a day, an increase of 3,329 barrels per day over the previous week. Also, he anticipated that "the completion of two links in pipe line projects in the Southwest during the past week will indirectly affect the East-coast oil supply by enlarging supply facilities at certain points."

A statement issued by Secretary of Commerce Jones with respect to the Defense Plant Corporation's commitment to finance the fitting of box cars with linings for the transportation of oil, revealed that 100 such cars will be equipped. As noted in last week's issue, ODT's February 3 announcement had mentioned only 50 cars. Mr. Jones said that DPS had authorized contracts involving approximately $185,000 for fitting 50 cars with Flexitank Corporation "flexitanks," and another 50 with the Glenn L. Martin Company's "mareng-cells."

Fair Employment Committee Gets White House Aid

When new machinery has been established to deal with "discrimination in war employment," the hearings "in the railroad case and in other cases which may have been temporarily postponed will be continued," according to a February 4 statement from the Office of War Information.

The statement revealed that President Roosevelt had requested Manpower Commission Chairman Paul V. McNutt, "after consultation with the members of the Committee on Fair Employent Practices, to call a conference of leaders of those groups opposing discrimination in war employment to consider revision and strengthening of the committee's scope and powers."

As noted in the *Railway Age* of January 16, page 224, Mr. McNutt canceled the hearing which the committee had scheduled for January 25 to consider complaints of discrimination against Negro employees on the railroads. The committee registered its disappointment at the McNutt action, and President Roosevelt's interest was the next development.

Booklet Describes C. N. R.'s Work for the War

The Canadian National has issued a 32-page, 5½ in. x 8 in. illustrated booklet entitled "Serving the Nation in the War," which sets forth the road's contribution to Canada's war effort. In outlining the many ways in which the C. N. R. and its employees have (quite apart from transportation) cooperated to this end, the booklet observes that C. N. R. officers assisted in the formation of the Defense Purchasing Board, Censorship, and the Department of Public Information. In addition, the company loaned to the Dominion government the services of its staff of economists, permitted its technical men to help in the selection and expropriation of land required for the Empire Air Training Plan, and assisted in the movement to Canada of British evacuees.

Reproductions of photographs illustrating many of the C. N. R.'s war activities are contained in the booklet, covering all phases of the rail, sea, air and telegraph operations of the company It also tells about the important work being done in Eastern Canada in the National Railways Munitions plant and proclaims that the system's 100,000 employees are "service men all."

Circuses Can Pay Their Money and Take Their Chances

Circuses and carnivals using railroad and highway transportation will be permitted by the Office of Defense Transportation to operate during the coming season "if they are willing to submit to certain restrictions and take certain chances," according to a statement of ODT policy issued on February 7 by Director Eastman. With respect to sporting and recreational events, the ODT statement cited President Roosevelt's March 10, 1942, expression to the effect that the war effort "will not be hampered but actually improved" by participation "within reasonable limits" in "healthy recreational pursuits," adding that ODT should not through its authority over transportation "exercise any indirect control over sports and recreation which is inconsistent wth the statement by the President."

The latter, however, is not interpreted by ODT as indicating that "the best interests of transportation, from the standpoint of the war effort, should be sacrificed to protect 'recreation as usual.'" Thus ODT thinks it would be better, from a transportation standpoint, if the Kentucky Derby were not run this year; but it will not discriminate against race tracks so long as their operation is permitted by law. At the same time, it will not permit the operation for the accommodation of Derby spectators of any special trains, extra sections, or chartered cars or buses. Those who attend from a distance "will have to put up with whatever regular service may be available," bearing in mind that "such unnecessary travel on their part may interfere with the proper accommodation of members of the military forces or of others whose travel is necessary." And "these same comments apply to any other sporting event which attracts large attendance from a distance."

The decision to let the circuses operate followed a "thorough survey" of the equipment owned by the two largest shows which travel by rail in special trains. These are Ringling Brothers-Barnum & Bailey Circus, and Cole Brothers. The former has 22 sleeping cars, 52 70-ft. flat cars, and 13 70-ft. stock cars; the sleeping cars are of wooden-underframe construction, "not suitable for main-line service in regular trains nor adaptable to conversion," while the length of the flat and stock cars, "which is abnormal, makes them unsuited for general use in ordinary freight service." Cole's 25 cars are of similar type.

"In the circumstances," the ODT announcement said, "the ODT will issue a general permit to railroads allowing operation of special circus trains made up of circus-owned cars, provided the circuses concerned submit their itineraries in advance to the ODT for approval and agree to schedule their performances so that travel to and from by the public will be in non-peak hours, and provided that their contracts with the railroads stipulate that circus movements are to be subject to delay and interruption resulting from giving of preference to all freight and passenger trains or from lack of available motive power, and that there be no penalty for delay or interruption of schedules. If the smaller circuses and carnivals decide to operate, they must be prepared to take the chance involved in their present ineligibility for tires and the further chance that restrictions or regulations may become necessary which will effect their use of regular train service or impose additional limitations on the use of motor vehicles."

With respect to state and county fairs, the ODT statement urged responsible officials "to give thought to restrictions imposed by gasoline rationing on use of motor vehicles, and to the possibility that further restrictions might become necessary."

Materials and Prices

Following is a digest of orders and notices of interest to railroads issued by the War Production Board and the Office of Price Administration since January 24.

Auto parts—Limitation Order L-158, as amended January 26, relieves the production and delivery of automotive replacement parts for civilian use. The amendment establishes the sequnce of deliveries by producrs of replacement parts and authorizes producers and distributors to deliver replacement parts without regard to ratings on purchase orders bearing preference ratings of AA-3 or lower. When a producer or distributor receives an unrated purchase order for replacement parts, he may now schedule his delivery as though the unrated purchase order actually bore an AA-2X rating. This will further increase the availability of replacement parts for civilian vehicles. The orginal order authorized producers of automotive replacement parts for civilian vehicles. The original order authorextend a rating of AA-2X to obtain materials needed for their production. The amendment also invalidates purchase orders for replacement parts for delivery to or for the account of the Army or Navy of the United States or the Maritime Commission, unless they bear a preference rating of AA-1 or higher.

Chemicals—The Chemicals Division of WPB announced, effective February 1, revisions of Form PD-600 (customer's application for deliveries of chemicals) and Form PD-601 (supplier's schedule of deliveries of chemicals). The new PD-600 (chemicals material—customer's application for use or delivery) and the new PD-601 (chemicals—supplier's schedule of deliveries) may be obtained from field offices of WPB and should be used, insofar as it is practicable to do so, for applications made during the month of February for permission to use, receive or ship

any of the chemical materials during March. The new forms must be used for applications made during the month of March. Form PD-600 has been simplified by the omission of columns 5, 6, 7 and 8 (which called for a summary of shipments by preference ratings) and by rearranging the form so as to facilitate filling it out. The revised PD-601 calls for certain information regarding transportation, but with this exception is substantially unchanged. That numbers of the columns of the old forms have been retained so that column numbers referred to in the orders (with the exception of the suppressed columns) may still be followed.

Controlled materials CMP Regulation No. 1 will effect substantial simplification in the Controlled Materials Plan, to take effect immediately, according to announcements on February 1. The effect of the simplification will be to reduce the amount of paperwork and accounting required of manufacturers and particularly those producing Class A products. Allotments of controlled materials (steel, copper and aluminum) will be made on a quarterly basis instead of monthly as previously announced, thus reducing the number of accounting entries by two-thirds. The total number of programs for which accounts will be required has also been reduced to less than one hundred from several times that number. This will further simplify the internal bookkeeping of users of controlled materials. The simplifications will affect accounting practices under the Controlled Materials Plan, but will not change the requirements for applications for allotments of controlled materials which are now being prepared by manufacturers. These applications must be prepared and submitted in accordance with instructions already given. Special accounting manuals giving simple debit tnd credit methods for keeping records of allotments and their use are being prepared by WPB to assist manufacturers to set up their bookkeeping procedures under the Plan.

Elevators—General Conservation Order L-89, as amended January 29, places all types of elevators in the category of restricted orders by re-defining the term elevator to cover all kinds, including hydraulic, hydro-electric and hand-power elevators, but excluding portable elevators. The term also includes inclinators and electrically operaated passenger-elevating devices used in connection with stationary stairways. A restricted order means any purchase order for a new elevator, for material to change the method of operation or control of any elevator or for parts, equipment or accessories of any kind to be used in any existing elevator. No restricted order may be filled without authorization, except for maintenance and repair parts in an aggregate amount not exceeding $500 for any single elevator or in cases where there has been an actual breakdown and essntial repair parts are not otherwise available. Parts, equipment or accessories aggregating $25 or less for a single elevator are exempted from the limitations and restrictions of the order. Additional restrictions on the use of non-ferrous metals and steel are imposed to include hanger cover plates, passenger cabs (not including gates or doors), freight elevator side guards and car gates. Essential hardware is exempted.

Inventories—WPB completed mailing Controlled Materials Plan inventory report forms to PRP units on January 30. The form, CMP-7, calls for a report of shipments during the last quarter of 1942 and statements of inventories of aluminum, copper, steel and other materials on the CMP list, on hand December 31. The completed forms must be returned to WPB by February 22. Reports of shipments during the last quarter of 1942 are to be broken down by quantity, value and procurement agency, and must show quantities and types of listed materials entering into the finished product. The inventory schedule must show materials put into production during October, November and December, and inventories—both usable and non-usable—on hand the last day of the year. In addition, the schedule calls for an estimate of usable inventory which it is expected will be in the possession of the manufacturer on March 31, 1943. Usable inventory means materials available for use in current production. Inventory to be reported is only that of materials in the forms listed on the CMP Materials List. Finished goods or goods in process should not be included. Year-end inventories must be reported for quantities of carbon steel, exceeding 75 tons, if usable, and 5 tons, if not usable; alloy steel, 15 tons, if usable, and 1 ton, if not usable; and copper, nickel, tin, mica and specified critical metals, in combination in excess of 10 tons, and 500 lb. per item, if not usable.

Lumber—A directive supplementing Conservation Order M-234, effective February 5, authorized the cutting of Douglas fir lumber and the allocating of logs where necessary to increase the production of certain types of Douglas fir lumber specially needed for the war program on the West Coast. The directive was issued because severe weathr conditions in the Pacific Northwest area reduced the anticipated production of logs and lumber and made necessary a stricter control over the use of such logs as are available. The directive does not carry with it any new powers, but simply instructs the Western Log and Lumber Administrator to make active use where necessary of the authority previously conferred on him by M-234, which was issued September 8, 1942.

Material for manufacturing—An amendment to Priorities Regulation No. 11 and a short supplemental Regulation No. 11A, issued January 30, gives details of procedures to govern PRP units during the period of industry's transition from PRP to tht Controlled Materials Plan in the second quarter of this year. The transitional procedure will assure materials to manufacturers pending their receipt of allotments under CMP by extension into the second quarter of a basic percentage, in most cases 70 per cent, of their first quarter PRP authorizations. After March 31, but not before that date, PRP units which have not been advised otherwise will be permitted to apply first quarter ratings to the remaining 30 per cent of their first quarter authorizations. The quantities authorized, however, will vary in some cases for particular products or industries. Extensions of authorizations are automatic and PRP units will not be required to submit additional PD-25A applications.

Metal strapping—Conservation Order M-261, issued January 25, prohibited the use of metal strapping commercially for containers or bundles unless the weight of the container and contents exceeds 90 lb.; the net weight of the contents exceeds .058 lb. per cu. in.; the use is required by the Interstate Commerce Commission; the container and contents are to be delivered to the War Agencies or for export outside the United States and Canada; or unless the strapping is to be used for packing fresh fruits, vegetables, meats, fish or poultry or for closing fibre drums or hexagonal or octagonal fibre containers. An amendment, effective February 4, removed restrictions on the commercial use of metal strapping and wire for packing of metal pipes, shingles, wood box parts and knocked-down wooden boxes and similar commodities in light bundles.

Paints—New mixing formulas for red, white and blue lead paints to be made up on the job, the use of which will save up to 50 per cent of the normal linseed oil requirement, were recommended February 1 by the Specifications Branch of the Conservation Division of WPB. The new formulas were prepared by the National Bureau of Standards. The formula for dry red lead paint in lots of 100 lb. reduces raw linseed oil from 3⅜ gal. to 2 gal.; turpentine or mineral spirits from ⅜ gal. to ¾ gal.; and liquid paint drier from 2.5 pts. to 2 pt. The formula for paste red lead in 100 lb. lots reduces raw linseed oil from 2 gal. to 1/5 gal.; turpentine or mineral spirits from ⅜ gal. to ¾ gal.; and liquid paint drier from ⅔ pt. to ⅞ pt. The formula for paste white lead in lots of 100 lb. suitable for tinting reduces raw linseed oil in the first coat from 4 gal. to 2½ gal.; turpentine or mineral spirits from 2¼ gal. to 2¾ gal.; and liquid paint drier from 1 pt. to 1 pt.; and raw linseed oil in the second coat from 1½ gal. to 1 gal.; turpentine or mineral spirits from 1¾ gal. to 1¾ gal.; and liquid paint drier from 1 pt. to 1 pt. Because of these allocation controls, synthetic resins for use in the production of metal primer paints are not available for civilian use.

Prices

Abrasives—Maximum Price Regulation No. 316 (coated and bonded abrasive products), effective February 8, replaces the General Maximum Price Regulation for sandpaper, abrasive coated cloths, grinding wheels, sharpening stones and other abrasive products. For sales or deliveries other than to War Agencies, the regulation fixes as the maximum price the highest net price charged by a seller for the same commodity on a March, 1942, delivery to a purchaser of the same class. If no delivery was made during March, a seller's maximum price is his highest net offering price for the same commodity in March to a purchaser of the same class. A special provision reaffirms for the Tennessee Sandpaper Corporation of Nashville, Tenn., the 10 per cent increase in prices of its coated abrasive products over the March, 1942, prices which was allowed the company in an order issued November 4, 1942.

Coal—Schedules to cover increased production costs in bituminous coal mines in Pennsylvania, West Virginia, Maryland and Ohio, issued February 5, provide for increases in average mine realization from 18 to 25 cents a ton f.o.b. mine, which will be passed on to the domestic and industrial consumer. The greater part of the higher prices covers the cost of extending the 5-day, 35-hour week to a 6-day, 42-hour work period. The balance of the increase represents creeping production costs which have accumulated since maximum prices were established for bituminous coal last April. The new schedules follow similar action for Districts No. 2, No. 22 and No. 23. In still other districts agreements for the work on the sixth day, which involves time and one-half and rate per ton and one-half for time worked over 35 hours, have been reached and schedules reflecting the costs of the extended operations will be issued soon. The new maximum price schedules are 23 cents a ton in District No. 1; 19 cents in District No. 3; 18 cents in District No. 4; and 19 cents in District No. 6.

Fuel oil—Revised Price Schedule No. 88, as amended January 25, established a new price structure and a new schedule of dollar-and-cents ceilings for industrial fuel oils refined in parts of Kansas, Arkansas, Louisiana, Oklahoma, New Mexico and Texas. The domestic prices for fuel oil will not be affected. While the new ceiling prices reflect an increase of from 5 to 8 per cent in some areas, notably New Mexico where ceilings were abnormally low in relation to other areas, the higher prices are said to be largely offset by the savings in the elimination of costly transportation from Gulf Coast points. Oil of 9.9 gravity and below is 85 cents per 42-gal. bbl. in Area A, 80 cents in Area B and 74 cents in Area C; oil of 10.0 to 12.9 gravity is 90 cents, 85 cents and 85 cents, respectively; oil of 13.0 to 16.9 gravity is $1.02, 97 cents and 97 cents; oil of 17.0 to 20.9 gravity is $1.14, $1.09 and $1.09; oil of 21.0 to 24.9 gravity is $1.26, $1.21 and $1.21; and oil of 25.0 and above gravity is $1.32, $1.27 and $1.27. Residual fuels in the area now exceed by a wide margin the local production. The deficiency of railroad fuels amounts to 750,000 bbl. per month, or about 1/3 of the total consumption. Deficiencies have been supplied by tank car from Gulf Coast refiners at higher costs at points of consumption than the railroads and other consumers will be required to pay under the new price ceiling when obtaining their supplies locally. The cost of this fuel movement spread over the entire volume consumed puts the price to the buyer about 15 cents per bbl. above the ceiling of No. 6 fuel oil in the local area. The new ceiling prices permit greater flexibility of refinery operations in these areas, inasmuch as refiners can now sell residual and distillate fuels separately or in blends in accordance with wide variations experienced in the relative demands for these fuels without changing their net realization per bbl. of fuel oil. Moreover, the new prices, generally speaking, have the effect both of equalizing the ceiling price level for analogous grades of residual fuels of the subject area with that of the Gulf Coast and of equalizing the price levels of the different regions within the subject area. Inequalities which would otherwise have resulted from compliance with the program of the Petroleum Administrator for War will be obviated. Kansas refiners, exclusive of those in the Kansas City area, will retain their normal price relationship relative to the Oklahoma refiners.

Price lists—Digests of interpretations of the General Maximum Price Regulation were contained in the third of a series of digests published February 11. The pamphlet brings together digests of important interpretative rulings by OPA under the General Maximum Price Regulation and supplements earlier manuals, including rulings on the sale of railroad tracks and land; sales of demountable buildings; auctions of second hand merchandise; and sales of fabricated structural steel shapes, plates or bars.

GENERAL NEWS

Frankfurter Reveals What Law Should Be

The Justice advises repeal of liability law in favor of compensation act

"Every vestige of the doctrine of assumption of risk was obliterated" from the Federal Employers' Liability Act by the 1939 amendment, the United States Supreme Court ruled last week in an opinion by Justice Black. The ruling came in Hattie Mae Tiller, Executor of the Estate of John Lewis Tiller, vs. Atlantic Coast Line, which involves a suit for damages in connection with the death of Mr. Tiller, a former A. C. L. policeman, who was killed by a train moving on a track adjacent to that where he was at work inspecting seals of another train.

The case came to the Supreme Court on appeal from a Circuit Court of Appeals ruling affirming the district court's action in granting defendant's motion for a directed verdict. The Supreme Court has now sent it back to the district court with a finding that "the question of negligence on the part of the railroad and on the part of the employee should have been submitted to the jury."

Justice Black spoke for an unanimous court, although a separate concurring expression came from Justice Frankfurter. The majority decision turned upon an interpretation of the 1939 amendment which stipulated that an "employee shall not be held to have assumed the risks of his employment in any case where such injury or death resulted in whole or in part from the negligence of any of the officers, agents, or employees of such carrier." By going into the legislative history of this amendment Justice Black found support for his ruling that the "assumption of risk" defense had thereby been abolished and the principle of "comparative negligence" established instead.

The latter authorizes "comparison of negligence instead of barring the employee from all recovery because of contributory negligence"; it leaves "for practical purposes only the question of whether the carrier was negligent and whether that negligence was the proximate cause of the injury." And no case under the act is now "to be withheld from the jury on any theory of assumption of risk, and questions of negligence should under proper charge from the court be submitted to the jury for their determination."

Justice Frankfurter's separate concurring expression was in the main an argument for the abandonment of the Federal Employers' Liability Act "in favor of a system of workmen's compensation not dependent upon negligence." This would be in line with one phase of the broadened social security program for railroad employees which, as noted in the *Railway Age* of January 30, page 296, is understood to have been worked out by the Railroad Retirement Board in collaboration with railroad labor organizations.

I. C. C. Favors Reed's Pooling Bill

The Interstate Commerce Commission's Legislative committee has submitted to Chairman Wheeler of the Senate committee on interstate commerce a report favoring enactment of S. 236, the bill introduced by Senator Reed, Republican of Kansas to amend Section 5 of the Interstate Commerce Act to empower the Commission to require the pooling of railroad revenues derived from general rate increases. Chairman Wheeler had requested the I. C. C. report.

Furlough Rates for Seamen

Identical bills S. 679 and H. R. 1743, introduced February 8 by Senator Butler and Representative Miller, both Republicans from Nebraska, would make merchant seamen traveling on leave entitled to the same railroad rates as soldiers or sailors on furlough.

New York Railroad Club to Have "Plate Steels Night"

The New York Railroad Club will hold a "Railroad Plate Steels Night" at 7:45 p. m. on Thursday, February 18 in the auditorium of the Engineering Societies building, 33 West 39th street.

Guest speakers for the evening will be Robert W. Wolcott, president of the Lukens Steel Company, who will address the meeting on "Observations on the Railroad Job for '43," and Dr. William G. Theisinger, director of welding research of the Lukens Steel Company, whose subject will be "Railroad Steel Plate—Past and Present."

A technicolor motion picture entitled the "World's Largest Plate Mill" will be shown—depicting steel manufacturing operations, rolling on the Lukens 206-in. mill (the world's largest plate mill), spinning of the world's largest flanged and dished heads and pressing 3½-in. thick steel plate.

Speakers will be introduced by J. Frederic Wiese, manager of combined sales of the Lukens Steel Company and its subsidiaries, who will be chairman of the meeting.

I.C.C.'s Money Is Trimmed 7.3%

Outlay for fiscal '44 is cut 692 thousand, mostly from mother bureau

Appropriations totaling $8,812,000 to cover Interstate Commerce Commission activities during the fiscal year ending June 30, 1944, are carried in H.R. 1762 the Independent Offices Appropriation Bill, 1944, which was reported from the House committee on appropriations on February 8. This is a decrease of $692,192 from the $9,504,192 appropriation for the current fiscal year ending June 30, 1943, and it is $669,000 less than the fiscal 1944 budget estimate which had cut the commission only $23,192 under its fiscal 1943 appropriation.

The largest cut made by the committee was the $545,000 it lopped off the budget estimate for motor transport regulation work. Since the budget estimate was already $20,240 less than the fiscal 1943 appropriation for the motor work, the $3,000,000 carried in the bill for fiscal 1944 would be $565,240 less than what the commission has had to spend for motor regulation this year. Also, the committee cut $52,000 from the budget estimate for the commission's general administrative expenses, making the bill's figure ($2,800,000) $98,528 less than the current appropriation; $49,000 from the "valuation of property" item, making it $49,927 less than the current appropriation; and $23,000 from the "printing and binding" item, making it $53,200 less than the comparable fiscal 1943 appropriation.

With the reporting of the bill the committee made public testimony which had been taken last month at executive sessions before a subcommittee which had charge of the measure. There it was revealed that the subcommittee gave some thought to eliminating from the bill that provision which stipulates that the salaries of members of the I.C.C., the Tariff Commission, and the Maritime Commission shall be held to $10,000. The provision was not, however, eliminated, the bill carrying the stipulation just as its predecessors have since 1935.

The salary of I.C.C. members is set at $12,000 a year in the Interstate Commerce Act, but this has not been paid since 1932—first because of government pay-reduction acts and executive orders and then because of the appropriation-bill stipulations. When Representative Woodrum, Democrat of Virginia, chairman of the subcommittee, asked Commissioner Mahaffie if he had anything to say about the

(*Continued on page 375*)

Last Year's N.O.I. Was $1,481 Million

It was up 48.3 per cent from 1941 and 18.3 per cent better than 1929

Class I railroads in 1942 had a net railway operating income of $1,480,940,760, an increase of 48.3 per cent over 1941's $998,286,708, according to the monthly summary for December and the 12 months issued last week by the Interstate Commerce Commission's Bureau of Transport Economics and Statistics. This is equivalent to a return of 5.56 per cent on property investment, according to the A. A. R.

A counle of days after the summary was made public, the I. C. C. Bureau followed through with the latest issue of its Monthly Comment on Transportation Statistics, devoting much of the issue to discussion of the 1942 railroad results. There the 1942 net income after fixed charges is estimated at $960,000,000—a figure "surpassing all previous records, the nearest being that for 1929, which was $898,806,611."

The distribution of last year's net railway operating income by districts shows that the changes as compared with 1941 ranged from the 76.6 per cent increase in the Western District to the 18.7 per cent drop in the Pocahontas Region. The Eastern District showed a 35.3 per cent rise while the Southern Region was up 54.4 per cent. The 1942 operating ratio was 61.4 as compared with 1941's 73.5.

Gross revenues for last year totaled $7,466 million, as compared with $5,346 million in 1941, and $6,279 million in 1929, the 1942 figure being 39.6 per cent above the previous year and 18.9 per cent above 1929. Operating expenses at $4,601 million were up 25.6 per cent from 1941's $3,664 million, and 2.1 per cent from 1929's $4,506 million. As noted above, the 1942 net railway operating income at $1,481 million was up 48.3 per cent from the previous year; and it was 18.3 per cent above the comparable 1929 figure. Meanwhile 1942 tax accruals of all kinds totaled $1,202 million, as compared with $547 million in 1941 and $397 million in 1929.

The I. C. C. Bureau's comment calculates the 1942 rate of return on two valuation bases and on two net railway operating income bases, the one before provision for federal income and profits taxes, and the other after deduction of all railway tax accruals. Thus the before and after income and profits taxes rates of 9.94 per cent and 6.57 per cent, respectively, are shown on the $22,536,000,000 "investment in road and equipment, December 31, 1941, less accrued depreciation shown on the balance sheets and plus an allowance for working capital"; and the rates of 11.2 per cent and 7.4 per cent are shown on the $20,000,000,000 "value for rate making purposes given in General Commodity Rate Increases, 1937, 229 I. C. C. 435,451, adjusted to December 31, 1941, on basis of changes in book investment."

The statement shows December's gross revenue at $702,995,272, including freight revenues of $531,918,083 and passenger revenues of $119,150,730. The gross was up 46.6 per cent from December, 1941, reflecting increases of 36.7 per cent in freight revenues and 121.2 per cent in passenger revenues. December's net railway operating income at $170,850,986 was up 115.4 from December, 1941's $79,332,410. The comment statement says that the December net income "may be roughly estimated at $140,000,000."

Commenting on last year's operating expenses, the I. C. C. Bureau notes that while maintenance expenses in absolute amounts were the largest of recent years, they "did not increase in proportion to revenues." While available information did not indicate "to what extent this may be attributed to the inability of the railways to obtain the labor and materials needed," the Bureau did point out that the ratio of maintenance man-hours to car-miles for 1942 "was much lower than the corresponding rates for 1929 and 1930, and somewhat lower than for 1941 and 1940."

Railway employment statistics, as analyzed by the Bureau, show that "overtime payments . . . have increased considerably since June, 1942." A tabulation in that connection shows that such overtime payments for that month totaled $13,738,724 or 5.63 per cent of total compensation, whereas by November they had risen to $22,979,230 or 9.11 per cent of total compensation. The latter ratio "was higher than for any month since February, 1923, when such payments to employees were unusually heavy as a result of the 1922 shopmen's strike."

Pullman Company traffic and earnings figures for last year's first 11 months, the Bureau points out, showed that the number of revenue passengers carried was up 53.8 per cent from the comparable 1941 period. At the same time, the Pullman revenue passenger-miles "increased 90 per cent, with an increase in the average journey from 587.7 miles to 726 miles, or 23.5 per cent." Pullman revenue per passenger-mile declined, "notwithstanding higher fares," from 6.09 mills for the 11 months' period of 1941 to 5.46 mills for the corresponding 1942 period, "the decline probably being explained by the lengthened haul."

"In the further comparison of the same periods," the Bureau went on, "it may be noted that the revenues from sleeping-car operations were up 48.8 per cent, the expenses increased 24.3 per cent, and after considering auxiliary operations, the total net revenue increased from $5,692,503 in 1941 to $21,743,983 in 1942, or 2.82 per cent. This net is before tax deductions, which were $16,311,202 for 1942 compared with $4,122,560 for 1941 (11 months), leaving an operating income of $5,432,781 for 1942 against $1,569,942 for 1941."

Missouri Intrastate Fares

The Interstate Commerce Commission has instituted an investigation into the action of the Public Service Commission of Missouri requiring railroads serving that state to cancel as of December 31 the Ex Parte 148 increases on intrastate passenger fares. The proceeding is docketed as No. 28938.

Railway Wage Case Will Go to Byrnes

Emergency board findings, if approved by him, will become effective

President Roosevelt on February 11 sent to the Senate the names of Dr. Wm. M. Leiserson and Ex-Senator Schwartz of Wyoming to be members of the National Mediation Board. Dr. Leiserson succeeds David J. Lewis, and is named for a full 3-year term, ending February 1, 1946; he is a former member of this Board who has since served on the National Labor Relations Board, and, more recently, has headed the National Railway Labor Panel. Senator Schwartz succeeds Otto M. Beyer, director of transport personnel in the ODT, who has now resigned the NMB post from which he has for some time been absent on leave—this term expiring February 1, 1944.

Economic Stabilization Director James F. Byrnes whom President Roosevelt has designated to make final determinations with respect to railway wage increases asserted in a February 10 radio speech that "there must be no further increases in wages beyond the Little Steel formula except in limited special cases to correct patently gross inequalities and to rectify plainly substandard wages." The Little Steel formula embodies National War Labor Board policy to the effect that wages should not be advanced more than 15 per cent above the level of January 1, 1941.

On the basis, railroad employees as a whole would qualify at this time for a raise of less than one per cent, since the December, 1941, increase amounted overall to more than 14 per cent. If the non-operating and operating groups be considered separately, the former has already bettered the Little Steel formula with its December, 1941, increase amounting to between 15 and 16 per cent. The increase then granted the operating employees amounted to slightly less than 11 per cent; so that group might qualify for about four per cent more.

Mr. Byrnes got his assignment with respect to railroad wages in President Roosevelt's February 4 executive order "prescribing regulations and procedures with respect to wage and salary adjustments for employees subject to the Railway Labor Act." The order stipulates that reports which emergency boards chosen from the National Railway Labor Panel make to the President shall be filed with Director Byrnes who is given authority to modify the findings. Also, the order seems to put teeth into the emergency-board set-up when it provides that, except as Mr. Byrnes may direct, the recommendations of such boards "shall, upon the expiration of thirty days after the report is filed with the President, become effective."

Heretofore findings of emergency boards appointed from the panel had been expected to be like those of boards appointed under the Railway Labor Act., i.e., recommendations which either party would be free to reject after the expiration of 30 days. This was the situation in 1941 when the labor organizations rejected the emergency board's report and obtained increases in addition to those recommended. The panel, headed by Dr. William M. Leiserson, was created by President Roosevelt to provide wartime procedures whereby disputes could be submitted to emergency boards without the necessity for the taking of the strike votes which would be required if regular Railway Labor Act procedures were followed.

Dr. Leiserson has received a request from the non-operating employees for the appointment of a board in connection with the current demand for a wage increase of 20 cents an hour, a minimum wage of 70 cents an hour, and a closed shop. He had, however, been delaying action on this request, as well as others, pending the issuance of the President's executive order settling jurisdictional matters. Dr. Leiserson had not appointed the board when this issue went to press.

In addition to dealing with the emergency-board matters, the President's order covers all phases of wage and salary changes on the railroads in their relation to the Administration's stabilization policy. General orders of the National War Labor Board are made applicable with respect to wage and salary adjustments which may be made without specific approval, except as to salaries of $5,000 a year or more where regulations of the Commissioner of Internal Revenue shall apply. Meanwhile, adjustments of salaries under $5,000 heretofore approved by the Commissioner shall not be affected. Other proposed adjustments, deemed to require specific approval, must be filed with the chairman of the National Railway Labor Panel, i.e., Dr. Leiserson.

If he has reason to believe that the proposed change may not conform to the stabilization program or to directives of the Economic Stabilization Director, and the proposal is not modified to conform to such standards, "he shall designate three members of the panel as an emergency board to investigate the proposed change and to report to the President." Otherwise the chairman of the Panel "may permit the proposed change to become effective."

Emergency boards are required to certify in their reports to the President that their recommendations conform with the standards of the stabilization program and with Mr. Byrnes' directives thereunder. Aside from those which go to the President and Mr. Byrnes, copies of emergency board reports are to be filed also with NLWB and the Commissioner of Internal Revenue.

That part of the order which defines Director Byrnes' role with respect to emergency board reports reads as follows: "The Economic Stabilization Director may on behalf of himself or other departments and agencies concerned, report to the President the effect of the recommendations on the general stabilization program. Unless and except to the extent that the Economic Stabilization Director shall otherwise direct, the recommendations of the emergency board in regard to proposed changes affecting wages and salary payments shall, upon the expiration of thirty days after the report is filed with the President, become effective."

In his January 10 radio speech Director Byrnes followed through from his defense of the Little Steel formula to say this: "General and indiscriminate wage and price increases will not solve any of our real problems. They will not give us increased manpower. They are advantageous to the groups that get them only so long as other groups can be kept from getting them. The apparent advantages obtained by the groups benefited will prove short-lived and illusory during the war and will bring retribution even on those groups when the war is over. Those who demand them are only demanding another depression."

Trainwomen on the P. R. R.

The Pennsylvania, on February 6, assigned its first women passenger "trainmen" to service on Philadelphia suburban trains to perform the regular duties of passenger brakemen.

To date only three women have been assigned to regular runs on Paoli locals leaving the Philadelphia Suburban station. Twenty-seven other women have made their student trips for this service, however, and will be placed on Philadelphia suburban trains and Baltimore and Harrisburg locals as they are equipped with uniforms. Additional women will be trained for this type of work as they are needed to replace male employees entering the armed forces. Both married and single women, at least 21 years of age, who have passed rigid physical tests, will be accepted for train service.

The new women train employees will wear a uniform consisting of a fitted blue coat with the P. R. R. insignia on the lapels, a plain blue skirt, white shirt, black four-in-hand tie, and a blue trainman's-type hat. A topcoat, conforming closely to the regular trainman's coat, completes the uniform.

Scholarships to be Awarded to Sons of P. R. R. Employees

Two 4-year "Frank Thomson" scholarships will be awarded to sons of living or deceased Pennsylvania employees beginning with the 1943-44 college year, H. A. Enochs, chief of personnel of the road, announced recently.

A trust fund for the scholarships was established in memory of the late Frank Thomson, a former president of the P. R. R., and the income from the fund is used to give successful candidates a technical education. The fund provides for eight scholarships currently, two being awarded each year. The trustees of the fund pay to successful candidates a sum not to exceed $800, on a quarterly basis, each school year.

Competitive tests will be held next June to select candidates to fill vacancies now existing because of completion of scholarships awarded in 1939. The examinations will be patterned after the entrance exams of the scientific departments of the larger universities, colleges and technical schools. Students now in college are eligible if they have a score above the 50th percentile in all branches in which they are examined.

Bill for Regular-Rate Air Mail

A bill (H. R. 1720) introduced in the House February 4 by Representative Boren, Democrat of Oklahoma, would authorize the Postmaster General to provide for the transportation by air of all classes of mail, including parcel post, without surcharge, wherever delivery would be speeded thereby.

January Employment 12.96 Per Cent Above 1942

While railroad employment decreased 0.14 per cent—from 1,320,910 to 1,319,114—during the one-month period from mid-December to mid-January, the January total was 12.96 per cent above the comparable 1942 figure, according to the latest summary of preliminary reports prepared by the Interstate Commerce Commission's Bureau of Transport Economics and Statistics. The index number, based on the 1935-1939 average as 100 and corrected for seasonal variation, was 134.3 for January, as compared with December's 131.5 and January, 1942's 119.

January employment in four of the seven employee groups was under December, the group embracing transportation employees other than train, engine and yard being down 1.45 per cent and the maintenance of way and structures group off 1.07 per cent. Other decreases were less than one per cent, as were the increases reported for three groups. Meanwhile all groups were above January, 1942, the largest increase being the 27.25 per cent rise in the maintenance of way and structures group. Next in turn came yardmasters, switch-tenders, and hostlers, up 12.57 per cent, and train and engine service, up 11.34 per cent.

Representation of Employees

Reporting on results of recent elections in representation-of-employees disputes, the National Mediation Board has certified the National Council of Railway Patrolmen's Unions, American Federation of Labor, as the "duly designated" representative of patrolmen on the Belt of Chicago; patrolmen, including lieutenants and sergeants, on the Chicago River & Indiana; and patrolmen, including special agents, assistant special agents and sergeants, on the Chicago & Western Indiana.

Meanwhile a Congress of Industrial Organizations affiliate—the United Steelworkers of America—has won the right to represent maintenance of way employees of the Patapsco & Back Rivers; while the Brotherhood of Railway Clerks, A. F. of L., has been designated as representative of the Atlantic & East Carolinas clerical, office, station and storehouse employees.

The Brotherhood of Railroad Trainmen

has displaced the Order of Railway Conductors as representative of road conductors on the Pennsylvania-Reading Seashore Lines, according to results of a recent election certified by the National Mediation Board. The vote was 57 to 17.

Meanwhile the Brotherhood of Locomotive Engineers has met a challenge from the Brotherhood of Locomotive Firemen & Enginemen, retaining, by a vote of 117 to 93, the right to represent locomotive engineers on the Wheeling & Lake Erie and Lorain & West Virginia. In other recent elections, the Hotel and Restaurant Employees' International Alliance, American Federation of Labor, retained the right to represent chefs, cooks, waiters-in-charge, and buffet-club car attendants on the Chicago, Milwaukee, St. Paul & Pacific; while the United Steel Workers of America, Congress of Industrial Organizations, won the right to represent the River Terminal's lone blacksmith.

Newsome Replaces O'Toole on House Committee

Representative John P. Newsome, Democrat of Alabama, has been elected to membership on the House committee of interstate and foreign commerce, succeeding Representative Donald L. O'Toole, Democrat of New York, who relinquished the assignment when he became chairman of the library committee.

Southeast Board to Celebrate Twentieth Anniversary

The Southeast Shippers Advisory Board will celebrate the twentieth anniversary of its organization at a meeting in Atlanta, Ga., on March 10 and 11. The meeting will honor Donald D. Conn, vice-president of the Transportation Association of America, who was one of the leaders participating in the creation of the regional advisory boards.

Large Amounts of Cash and Jewelry Found by Porters

More than $80,000 in cash and $30,000 in jewelry, that had been mislaid and forgotten in sleeping cars by soldiers and civilians, was restored to owners by the Pullman Company in 1942. In addition, 100,-000 items of personal property that were restored in 1942, had a value of several hundred thousand dollars, it is estimated. To encourage porters and car service employees to turn in lost items, merit citations are made on the employee's service record.

Club Meetings

The next regular meeting of the Eastern Car Foremen's Association will be held at 8 p. m. on March 12 at the Engineering Societies Building, New York. G. Q. Lewis, chief engineer of W. H. Miner, Inc., Chicago, will present a paper on "Snubbers."

Col. J. Monroe Johnson, member of the Interstate Commerce Commission, will be the guest speaker at the annual dinner of the Transportation Club, Rochester, N. Y., to be held on February 17 at the Rochester Chamber of Commerce Banquet Hall. Colonel Johnson will discuss the achievements of transportation in the war effort and will outline the duties and responsibilities of citizens in connection with the country's program to safeguard and promote the greatest possible use of its transportation facilities.

J. C. Nolan, city passenger agent of the Northern Pacific, has been elected president of the Philadelphia Passenger Association. Other newly elected officers of the association are: first vice-president, F. P. Lister, Santa Fe; second vice-president, A. A. Krombach, Southern Pacific; secretary, M. F. X. Ivers, Santa Fe; treasurer, A. J. Nice, Pennsylvania; historian, J. C. Ross, Atlantic Coast Line.

The Railway Club of Pittsburgh will meet at 8 p.m. on February 25 at the Fort Pitt Hotel, Pittsburgh, Pa. C. D. Stewart, chief engineer of the Westinghouse Air Brake Company, will address the meeting on the subject of "Braking High Speed Trains."

"Kid in Upper 4" Gets an Ad Award

The first award of the Eighth Annual Advertising Awards for conspicuous achievement in national newspaper advertising for 1942 was presented to Samuel A. Boyer, manager of public relations of the New York, New Haven & Hartford, at a banquet in the Waldorf Astoria, New York, on February 5. The award was given to the New Haven for its widely - acclaimed advertisement, "The Kid In Upper 4," prepared for the railroad by Nelson C. Metcalf, Jr., of the Colton Agency, Boston, Mass. The advertisement first appeared in early December.

Requests from the public and industry for reprints of the ad have necessitated special press runs and it has been reproduced in colors as a poster. The "Kid" will be used as the theme of a Metro-Goldwyn-Mayer movie "short" and the government plans to use the idea to aid the sale of U. S. War Bonds and Stamps. The Annual Advertising Awards were instituted in 1935 to further the aims and accomplishments of the original Harvard Advertising Awards of 1924 to 1930.

No Money for National Resources Planning Board

The Independent Offices Appropriation, which was reported from the House committee on appropriations this week, carried no funds for activities of the National Resources Planning Board for the fiscal year ending June 30, 1944. The record of hearings on the bill, which was released at the same time reveals that the Board sought a fiscal 1944 appropriation of $1,400,000, basing its request "on the need for the preparation now of plans—not only for winning the war but also for winning the peace."

The committee report on the bill made no comment on the failure to give the Board the $1,400,000 which had been recommended by the Bureau of the Budget. The action was interpreted in some quarters, however, as indicating Congress' disposition to retain for itself the major voice in post-war planning. For the current fiscal year ending June 30, 1943, the Board has had appropriations totaling $774,422.

Among the Board's recent publications is the report on "Transportation and National Policy," which went to Congress last fall, as noted in the *Railway Age* of November 7, 1942, page 748. Information furnished to the House committee reveals that 5,000 copies of that report were printed, and 3,300 had been distributed as of January 1. As of the same date there had been distributed 10,243 copies of the report's summary chapter which was also published separately under the title "The Future of Transportation" as a pamphlet in the Board's "Building America" series.

The day before the appropriations bill was reported, the Board had been assailed in a House speech by Representative Smith, Republican of Ohio, who asserted that there should be no more appropriations for the agency which "is a grave menace to the American people and should be abolished forthwith." In his opinion it was "the exclusive function of Congress" to deal with planning. The Resources Board, he added, was without authority in law "to do anything more than set up a six-year program for federal public works."

Advisory Boards Hold Essay Contest

The National Association of Shippers' Advisory Boards is conducting an essay contest for the purpose of developing "The Creed of the Good Shipper." Creeds are limited to 50 words. The contest is open to everyone except persons in any way connected with transportation companies. Entries shall express, in 50 words or less, the contestant's idea of the things necessary to produce perfect transportation. The contest closes on March 1 and winners will be announced on March 29.

Would Dismiss Complaint Against Supplemental Fare

Examiner William B. Wilbur has recommended in a proposed report that the Interstate Commerce Commission find that the supplemental fare of 15 cents charged New Jersey commuters riding on the Pennsylvania to and from Pennsylvania Station, New York, is not unreasonable or otherwise unlawful. The proposed report is in No. 28735, John E. Donnelly v. Pennsylvania Railroad Company. Among other observations leading up to his recommendation that the complaint be dismissed, the examiner said that the supplemental fare "is, in fact, an accessorial terminal charge designed to limit the Pennsylvania Station . . . to long-haul passenger traffic."

New Switching Cost Formula

A revised "switching cost formula" was issued this week by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. Intended for use in determining rail-terminal costs, it is a development from Form F, 5-42, orig-

inally issued in June, 1942. It contains the necessary accounting and statistical forms and a suggested set of working sheets for recording yard performance data. It has not been "considered or adopted" by the commission, it is stated, but is distributed to make available the results of research by the cost section of the bureau in order to encourage improvements in the technique of cost finding and facilitiate the use of cost data in commission proceedings.

I.C.C. Expense Fund Is Trimmed 7.3%

(Continued from page 371)

matter, Mr. Mahaffie told how the commission has "long thought that the Congress, having established the pay for a position of this character, it would be appropriate perhaps for that salary to be paid without continuing this legislative provision in the appropriation bill."

Chairman Woodrum then calculated that it would take only $22,000 a year more to pay the $12,000 to the 11 commissioners; and Mr. Mahaffie agreed that the commission would undertake to absorb that amount. Commissioner Miller said he knew of one former commissioner who had left "on account of the salary matter," and suggested that in the future the $10,000 salary might not attract men "as desirable" as those to whom $12,000 would appeal.

The commission's presentation before the subcommittee covered a wide range of subjects in which one or another of the committee members happened to be interested. Responding to an inquiry from Representative Dirksen, Republican of Illinois, Mr. Mahaffie called the accident situation "alarming," although he supposed it was "unavoidable when you throw such a great burden on existing facilities." Commissioner Johnson told Mr. Dirksen that "we are beginning to observe fewer locomotive miles per locomotive failure"; and he cited a recent situation wherein as of a certain day "one great eastern railroad did not have a single surplus locomotive." With respect to the condition of railroad equipment and roadbeds, Mr. Johnson did not think the situation was "alarming"—a "more alarming situation," he added, "is that with reference to the equipment that is being run practically to its capacity."

With respect to the status of railroad reorganization proceedings, Mr. Mahaffie told Mr. Dirksen that the commission "has been anxiously awaiting each Monday since October," for a Supreme Court determination of reorganization questions which may break the "jam" and bring many roads out of reorganization. Mr. Dirksen also referred to land-grant rates, telling Mr. Mahaffie that he would have no objection to complete repeal if railroads still holding granted lands were willing to deed them back to the government. Meanwhile, I.C.C. Secretary W. P. Bartel had made the commission presentations in justification of the appropriations sought, while Commissioner Rogers talked briefly about highway accidents and the effect of gasoline and tire rationing on the operation of commercial motor vehicles.

The bill also carries appropriations totaling $133,000,000 for the Public Roads Administration, which is the same as the budget estimate. The largest item is $75,000,000 for access roads, while the federal-aid highway system gets $40,000,000, down $20,000,000 from the fiscal 1943 appropriation. There is no appropriation for the elimination of grade crossings, which got a fiscal 1943 appropriation of $16,700,000.

I. C. C. Service Orders

Service Orders Nos. 96-A, 100, and 101 were issued by the Interstate Commerce Commission, Division 3, last week.

96-A, issued February 6, provides for the movement of 15 carloads of machinery, which "cannot be transported via established tariff routes," from Newport News, Va., to Grand Coulee Power Plant, Odair, Wash. It directs that the movement be made "over routes best suited to the transportation of these shipments," such routes to be designated by the originating carrier "under the supervision of the Association of American Railroads, Car Service Division." Divisions of the rate are to be on a basis agreed upon by participating carriers, or fixed by the commission if no agreement is reached. The order is thus a supplement to Service Order 96, issued last November to provide for a like movement of 10 carloads of machinery.

Order No. 100, issued on February 5, requires the joint use of terminals at Birmingham, Ala. It is based upon a finding that the present operations of certain portions of such terminals "result in serious delay in the movement of locomotives, trains, and cars, and in congestion of traffic." The order runs to the Birmingham operations of the Birmingham Terminal, Southern, Illinois Central, Alabama Great Southern, St. Louis-San Francisco, Seaboard Air Line, Central of Georgia, and Louisville & Nashville. It provides that terms for the joint use of the facilities may be agreed upon between carriers involved; or, in the event of disagreement, they will be fixed by the commission.

Order No. 101, issued February 6, directed the Pennsylvania to divert approximately 240 cars of bituminous coal then on its line at West Morrisville, Pa., consigned to the Koppers Company at Edgewater Pier, N. J., on the New York, Susquehanna & Western, to South Amboy Pier, South Amboy, N. J., located on the Pennsylvania. This order was issued when it appeared that "due to congestion of traffic an emergency exists requiring immediate action."

Freight Car Loading

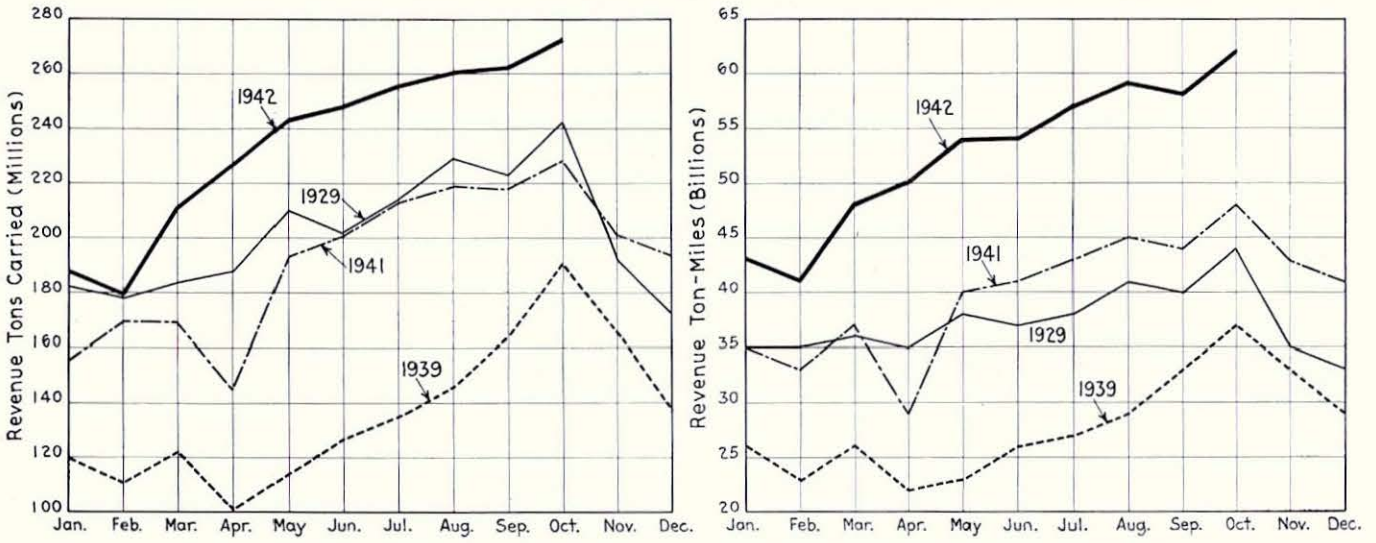
Carloading reports were so delayed this week that the Association of American Railroads had not announced the total for the week ended February 6 when this issue went to press.

As reported in last week's issue, loadings of revenue freight for the week ended January 30 totaled 734,582 cars, and the summary for that week, compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings

For the Week Ended Saturday, January 30

District	1943	1942	1941
Eastern	151,804	172,850	162,024
Allegheny	160,609	180,823	157,978
Pocahontas	51,003	49,915	48,704
Southern	117,419	128,046	112,014
Northwestern ..	77,517	96,867	81,019
Central Western	106,849	121,701	101,742



Revenue Tons and Revenue Ton-Miles —— 1942 Compared with 1929, 1939 and 1941

Southwestern .	69,381	65,363	50,873
Total Western Districts	253,747	283,931	233,634
Total All Roads	734,582	815,565	714,354
Commodities			
Grain and grain products	49,952	47,629	30,507
Live stock	13,322	11,517	10,411
Coal	169,830	155,610	152,157
Coke	15,193	14,569	13,819
Forest products	32,617	48,764	39,534
Ore	14,540	13,342	12,448
Merchandise l.c.l.	88,585	151,786	151,284
Miscellaneous ..	350,543	372,348	304,194
January 30	734,582	815,565	714,354
January 23	703,578	818,081	710,752
January 16	755,369	811,327	703,497
January 9	716,272	736,972	711,635
January 2	621,048	676,534	614,171
Cumulative Total 5 Weeks	3,530,849	3,858,479	3,454,409

In Canada.—Car loadings for the week ended January 30 totaled 58,251 as compared with 50,101 for the previous week and 62,331 for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total from Canada:		
January 30, 1943.....	58,251	35,946
January 23, 1943.....	50,101	29,872
January 16, 1943.....	61,774	34,341
January 31, 1942.....	62,331	34,637
Cumulative Total for Canada:		
January 30, 1943.....	273,625	161,499
January 31, 1942.....	296,566	150,922
February 1, 1941.....	251,848	133,508

I. C. C. Must Pass on Compensation of Indenture Trustees

Indenture-trustee claims for compensation for services rendered in connection with railroad reorganizations under section 77 of the Bankruptcy Act may not be allowed by federal courts without reference to the Interstate Commerce Commission, the Supreme Court ruled this week. At the same time the court interpreted section 77 (c) (12) which provides for the fixing by the I. C. C. of maximum limits on compensation for services, holding that the act leaves the courts free "to decide upon the basis of the commission's report all questions of law," but adding that with respect to an amount set as a maximum, "the only question of law which can arise is whether there is substantial evidence to support the commission's finding."

The case (Reconstruction Finance Corporation, Petitioner, vs. Bankers Trust Company, Trustee) was before the Supreme Court on writs of certiorari to the United States Circuit Court of Appeals for the Eighth Circuit. The judgment of the latter was reversed and the case remanded to the District Court. The Supreme Court's decision was by Justice Roberts, while a separate concurring expression was filed by Justice Douglas and joined in by Justice Black.

Involved are claims of the Bankers Trust Company for compensation for services as trustee under a mortgage of the Kansas City, Fort Scott & Memphis, part of the St. Louis-San Francisco, which is undergoing reorganization. The claimant embodied identical claims in two separate petitions to the court—one seeking court approval only, and the other under section 77 (c) (12), though it reserved the right to object to I. C. C. jurisdiction.

The petition designed for court action alone relied upon a contention that the services involved had not been rendered in connection with the reorganization plan, but by the claimant "as trustee under the mortgage in the performance of its fiduciary duties, for the benefit of the trust estate, as distinguished from the debtor's estate." Over the opposition of the R. F. C., a creditor and intervenor, the District Court accepted that view, holding that section 77 (c) (12) did not apply to the claim and directing Bankers to pay itself the amounts claimed out of cash deposited with it as indenture trustee. Meanwhile the I. C. C. acted on the other petition, fixing maxima allowances below the amounts claimed, and the District Court "refrained from passing on this portion of the commission's report."

As the Supreme Court viewed the issues before it, they involved two questions: Does section 77 (c) (12) apply to the claims involved? If it does, is it valid? As noted above, it answered both in the affirmative, disposing of the second when it found that "the committal to the commission of the fact finding offices raises no substantial question under the Fifth Amendment" of the Constitution in view of the fact that the usual court review on questions of law is contemplated.

Justice Douglas' concurring expression took the position that maximum allowances made by the commission were not subject to review by the District Court. As he interpreted the act, the 1935 amendments made the total amount of fees and expenses fixed by the commission "a ceiling beneath which the judge could make readjustments but above which he could not go."

S. B. Pettengill, Vice-President Transportation Association

Samuel B. Pettengill, ex-congressman from Indiana, has been elected vice-president and general counsel of the Transportation Association of America, Chicago, effective January 1, 1943. Mr. Pettengill was born at Portland, Ore., on January 19, 1886, and graduated from Middlebury (Vt.) College in 1908 and Yale Law School in 1911. Since the latter date, he has practiced law in South Bend, Ind. He was a member of the Seventy-Second congress (1931-33) from the Thirteenth Indiana district, and of the Seventy-Third to Seventy-Fifth congresses (1933-1939) from the third district of Indiana.

S. B. Pettengill

Throughout his political career, Mr. Pettengill took an active part in the sponsoring of legislation needed by the railroads. He was the author of the Pettengill bill introduced in 1933, to modify the fourth section of the Interstate Commerce Act, and in the previous year was a member of the House Interstate Commerce committee which drafted a bill to regulate highway transportation. He also served as chairman of the Sub-committee of the House Interstate Commerce committee.

December Accident Statistics

The Interstate Commerce Commission on February 6 made public its Bureau of Transport Economics Statistics' preliminary summary of steam railway accidents for December and last year's 12 months. The compilation, which is subject to revision, follows:

Item	Month of December 1942	Month of December 1941	12 months ended with December 1942	12 months ended with December 1941
Number of train accidents*	1,464	915	13,369	9,401
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	106	141	1,987	2,146
Injured	93	103	1,599	1,851
Passengers on trains:				
(a) In train accidents*				
Killed	3	1	39	18
Injured	101	79	1,205	1,168
(b) In train-service accidents				
Killed	5	4	56	16
Injured	248	157	2,192	1,748
Travelers not on trains:				
Killed	4	2	20	8
Injured	139	77	922	865
Employes on duty:				
Killed	101	81	941	749
Injured	3,892	2,397	35,182	25,265
passers:**				
All other nontrespassers:**				
Killed	223	242	2,205	2,149
Injured	807	813	6,940	6,914
Total—All classes of persons:				
Killed	442	471	5,248	5,086
Injured	5,280	3,626	48,040	37,811

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former cause damage of more than $150 to railway property.

** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties *for all classes of persons, including both trespassers and nontrespassers,* were as follows:

Persons:				
Killed	208	205	1,982	1,931
Injured	512	600	4,603	4,885

Jeffers Addresses Engineers

"The interdependence of all forms of transportation has been vividly illustrated by our war emergency, but the greatest lesson, perhaps of all, is that which is being learned by the average citizen, namely, that the domestic economy of the country depends on transportation," according to W. M. Jeffers, rubber director, at the annual meeting of the Engineers Society of West-

News Department continued on next left-hand page

HELPING LOCOMOTIVES MOVE *more tons..more miles..faster*

The tremendous increase in traffic . . . 630 billion ton-miles of freight traffic alone in 1942 . . . has placed exceptional demands upon the railroads.

Booster-equipped locomotives have played an important part in keeping war material rolling. While the Booster* supplies the required additional power for starting heavier loads, it is more than simply a starter. Its principal contribution to railroad economics is the speeding up of train movement all along the line by supplying a supplementary power to meet the operating emergencies of the road.

*Trade Mark Registered U. S. Patent Office

FRANKLIN RAILWAY SUPPLY COMPANY, INC. NEW YORK CHICAGO

In Canada: **FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL**

ern Pennsylvania at Pittsburgh, Pa., on February 8. "Without transportation," he said, "farms will cease production, factories will shut down, business will stop, schools will close, and finally, of course, the war will be lost on the home front. During our years of peace, the railroads, the buses, airlines, trucks, and inter-coastal shipping were the keenest sort of competitors. The struggle for business often established practices that benefited no one and in the final analysis harmed everyone.

"But the war has welded them in mutual determination to render the maximum of service to the country, and while, of course, the spirit of competition will again prevail after the war is over, there nevertheless will have been established a better understanding by each of the whole problem of transport. This will be true not only of the transportation agencies themselves but also on the part of the general public, the travelers and the shippers.

"We have long said the railroads are the backbone of transportation in America, and that is true. And since the war began we have amended this to read, 'the railroads are the backbone of offense,' and that is true also. But when the railroads stripped for action in this war we found that other forms of transportation also play an important part in our lines of communication. That has been equally true of other forms of transportation."

Mr. Jeffers said one of the most serious of all problems has been to find a definition of the word "essential" as it is used with reference to the various activities of our people. He said every time an attempt was made to put that word into a straightjacket a myriad of exceptions arose, almost as many exceptions as there are people.

"The solution, in my opinion," he continued, "is now, and always has been, to make the facts crystal clear and then to ask, not demand, co-operation. The punitive, the threatening approach, never wins loyalty, but breeds the spirit of antagonism.

"The engineers of this country have before them the greatest opportunity in history. By engineers, I mean also the chemists, and scientists generally. You have the problem of rebuilding the world physically, I don't mean socially.

"In railroad transportation new cars and new power will be developed in the light of experience gained in the war. New planes will be built, new trucks and buses designed, new ships will take our manufactured goods to the far places of the earth, new automobiles will travel our highways.

"In all of these things synthetic rubber will play an important role. In that particular field we are building a new industry for America. We are going to do in a year or two what normally would require a decade or more. The ramification of its possibilities is tremendous and its effect on industry will be far-reaching."

THE PRIVATE RAILROAD car of Mrs. Payne Whitney has been sold to the Western Maryland at Baltimore, Md., by the American Railway Equipment Company of New York, which company also recently sold the private business car of the late Harry Payne Whitney to the L. & N.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

ALLIED RAILWAY SUPPLY ASSOCIATION.—J. F. Gettrust, P. O. Box 5522, Chicago, Ill.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, G. M. & O. R. R., 105 W. Adams St., Chicago, Ill.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. P. Soebbing, Railway Exchange Bldg., St. Louis, Mo.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—B. D. Branch, C. R. R. of N. J., 143 Liberty St., New York, N. Y.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—F. O. Whiteman, Room 332, Dearborn Station, Chicago, Ill. Annual meeting, May 18-20, 1943, La Salle Hotel, Chicago, Ill.

AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.—E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago, Ill.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, C. I. & L. Ry., 836 S. Federal St., Chicago, Ill.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—Miss Lorene Kindred, Room 822, 310 South Michigan Avenue, Chicago, Ill. Annual meeting, October 19-21, 1943, Chicago, Ill.

AMERICAN RAILWAY CAR INSTITUTE.—W. C. Tabbert, 19 Rector St., New York.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—H. C. Millman, Ind. Agent, Pennsylvania R. R., Union Station, Chicago, Ill.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in cooperation with the Association of American Railroads, Engineering Division.—W. S. Lacher, 59 E. Van Buren St., Chicago, Ill.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—Page N. Price, Norfolk & Western Magazine, Roanoke, Va.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—J. H. Huntt, Tower Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—C. E. Davies, 29 W. 39th St., New York, N. Y.
Railroad Division—E. L. Woodward, *Railway Mechanical Engineer*, 105 West Adams St., Chicago, Ill.

AMERICAN TRANSIT ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York, N. Y.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1427 Eye St. N. W., Washington, D. C. Annual meeting, April 27-29, 1943, Netherland-Plaza Hotel, Cincinnati, O.

ASSOCIATION OF AMERICAN RAILROADS.—H. J. Forster, Transportation Building, Washington, D. C.
Operations and Maintenance Department.—Charles H. Buford, Vice-President, Transportation Bldg., Washington, D. C.
Operating-Transportation Division.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.
Operating Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Transportation Section.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.
Fire Protection and Insurance Section.—W. F. Steffens, New York Central, Room 3317, 230 Park Avenue, New York, N. Y.
Freight Station Section.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.
Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Protective Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Safety Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York, N. Y.
Engineering Division.—W. S. Lacher, 59 E. Van Buren St., Chicago, Ill.
Construction and Maintenance Section.—W. S. Lacher, 59 E. Van Buren St., Chicago, Ill.
Electrical Section.—W. S. Lacher, 59 E. Van Buren St., Chicago, Ill.
Signal Section.—R. H. C. Balliet, 30 Vesey St., New York, N. Y.
Mechanical Division.—Arthur C. Browning, 59 E. Van Buren St., Chicago, Ill.
Electrical Section.—J. A. Andreucetti, 59 E. Van Buren St., Chicago, Ill.
Purchases and Stores Division.—W. J. Farrell (Executive Vice-Chairman), Transportation Building, Washington, D. C.
Freight Claim Division.—Lewis Pilcher, 59 E. Van Buren St., Chicago, Ill.
Motor Transport Division.—George M. Campbell, Transportation Bldg., Washington, D. C.
Car-Service Division.—E. W. Coughlin (Assistant to Chairman), Transportation Building, Washington, D. C.
Finance, Accounting, Taxation and Valuation Department.—E. H. Bunnell, Vice-President, Transportation Building, Washington, D. C.
Accounting Division.—E. R. Ford, Transportation Building, Washington, D. C.
Treasury Division.—E. R. Ford, Transportation Building, Washington, D. C.
Traffic Department.—A. F. Cleveland, Vice-President, Transportation Building, Washington, D. C.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—F. L. Johnson, Claim Agent, Alton R. R., 340 W. Harrison St., Chicago, Ill.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—P. R. Austin, Johns-Manville Sales Corp., Merchandise Mart, Chicago, Ill.

CANADIAN RAILWAY CLUB.—C. R. Crook, 4415 Marcil Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July and August, Windsor Hotel, Montreal, Que.

CAR DEPARTMENT ASSOCIATION OF ST. LOUIS, MO.—J. J. Sheehan, 1101 Missouri Pacific Bldg., St. Louis, Mo. Regular meetings, third Tuesday of each month except June, July and August, Hotel De Soto, St. Louis, Mo.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—F. H. Stremmel, 6536 Oxford Ave., Chicago, Ill.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Ralph J. Feddor, 2803 N. Campbell Ave., Chicago, Ill. Regular meetings, second Monday of each month, except June, July and August, La Salle Hotel, Chicago, Ill.

CENTRAL RAILWAY CLUB OF BUFFALO.—Mrs. M. D. Reed, 1840-42 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month except June, July and August, Hotel Statler, Buffalo, N. Y.

EASTERN ASSOCIATION OF CAR SERVICE OFFICERS.—J. T. Bougher, 424 W. 33rd St. (11th floor), New York, N. Y.

EASTERN CAR FOREMAN'S ASSOCIATION.—W. P. Dizard, 30 Church St., New York, N. Y. Regular meetings, second Friday of January, March, April, May, October and November, 29 W. 39th St., New York, N. Y.

LOCOMOTIVE MAINTENANCE OFFICERS' ASSOCIATION.—C. M. Lipscomb, 1721 Parket Street, No. Little Rock, Ark.

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—Ben Smart, 7413 New Post Office Bldg., Washington, D. C. Annual meeting, September, 1943, Chicago, Ill.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. H. White, Room 1826, 208 S. La Salle St., Chicago, Ill.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Hotel Touraine, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York, N. Y. Regular meetings, third Thursday of each month, except June, July, August, September and December, 29 W. 39th St., New York, N. Y.

PACIFIC RAILWAY CLUB.—William S. Wollner, P. O. Box A, Sausalito, Cal. Regular meetings, second Thursday of each alternate month, at Palace Hotel, San Francisco, Cal., and Hotel Hayward, Los Angeles, Cal.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton, First National Bank Bldg., Chicago, Ill.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 308 Keenan Bldg., Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRIC SUPPLY MANUFACTURERS' ASSOCIATION.—J. McC. Price, Allen-Bradley Company, 624 W. Adams St., Chicago, Ill.

RAILWAY FUEL AND TRAVELING ENGINEERS' ASSOCIATION.—T. Duff Smith, Room 811, Utilities Bldg., 327 S. La Salle St., Chicago, Ill.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 308 Keenan Bldg., Pittsburgh, Pa.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with Telegraph and Telephone Section of A. A. R.

RAILWAY TIE ASSOCIATION.—Roy M. Edmonds, 507 Shell Bldg., St. Louis, Mo.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—Miss Lorene Kindred, Room 822, 310 S. Michigan Ave., Chicago, Ill. Annual meeting, September 21-23, 1943, Hotel Sherman, Chicago, Ill.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with A. A. R. Signal Section.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—D. W. Brantley, C. of Ga. Ry., Savannah, Ga.

TORONTO RAILWAY CLUB.—D. M. George, P. O. Box 8, Terminal "A," Toronto, Ont. Regu-

lar meetings, fourth Monday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—Lewis Thomas, Q. and C. Company, 59 E. Van Buren St., Chicago, Ill.

UNITED ASSOCIATIONS OF RAILROAD VETERANS.—Roy E. Collins, 112 Hatfield Place, Port Richmond, Staten Island, N. Y. Annual meeting, October, 1943.

WESTERN RAILWAY CLUB.—E. E. Thulin (Executive Secretary), 122 S. Michigan Ave., Chicago, Ill. Regular meetings, third Monday of each month, except January, June, July, August and September, Hotel Sherman, Chicago, Ill.

Supply Trade

Alco Gets Ad Award

First medal award for the best use during 1942 of "Advertising as a Social Force" has been made to the current American Locomotive Company's advertising campaign which began last November. The award was given to Kenyon & Eckhardt, Inc., who prepared the advertisements for the American Locomotive Company, at the eighth annual advertising awards dinner at the Waldorf-Astoria, New York, on February 5.

The annual advertising awards were instituted by Advertising & Selling in 1935 as a means of furthering the aims and accomplishments of the original Harvard Advertising Awards made from 1924-1930. The former awards were established "to encourage merit and stimulate improvement in advertising." For the 1942 awards, a jury, including representatives of many of the leading advertising firms and magazines, made the selections.

Citation of the company's 1942 advertising ranked it as the best example of advertising "employed educationally, such as for health, political science, national economics, the war effort, etc., or when employed for a product that tends toward bettering the standard of living." Appearing in the *Railway Age*, Life, Collier's, the Saturday Evening Post and other magazines, the American Locomotive series, illustrated in four colors, had dealt with the possible consequence of a Nazi victory to the American people. When the advertising campaign was inaugurated, Duncan W. Fraser, president of the company, said: "It has seemed to us that the time has come to enlist our advertising more completely in total war. We sense that it may no longer be appropriate for us to continue to report to the American public on our war production. The public already expects us to do all we can without talking too much about it. We have, therefore, decided to use our advertising to help bring home the significance of the war in terms of what it means to every individual American."

Hundreds of letters about the series have been received by the company and requests for reprints were numbered in the thousands. Many of these have been used by local committees charged with civilian defense, war bond sales, community war funds and other wartime functions. Mats of the advertisements have been requested by many newspapers for publication over their own signatures.

The Formica Insulation Company, Cincinnati, Ohio, was presented with the Army-Navy "E" award for production achievement on February 6.

E. D. Kruger has been appointed special representative, Railroad division, of the **Socony-Vacuum Oil Company,** with headquarters at Kansas City, Mo.

M. A. Foss, assistant vice-president of the **Locomotive Firebox Company,** has been elected vice-president, with headquarters as before at New York.

Dr. G. M. Butler, research engineer in the Dunkirk, N. Y., laboratories of the **Allegheny Ludlum Steel Corporation,** has been appointed chief metallurgist in charge of technical control and research.

Ralph G. Detmer, general manager of the **American Frog & Switch Co.,** Hamilton, Ohio, a subsidiary of the Taylor-Wharton Iron & Steel Co., has been elected vice-president of the company.

War workers' production ideas saved 1,250,000 man-hours in plants of the **General Electric Company** during 1942, and a record $158,943 was paid last year for 16,204 suggestions adopted of 53,945 submitted. The suggestions also saved more than 1,000,000 lb. of steel as well as large quantities of aluminum, copper, stainless steel, tin, chromium and other vital metals.

C. F. Hood, president of the **American Steel & Wire Co.,** was presented with a 25-year silver U. S. Steel Corporation service medal at a joint dinner meeting of the sales and operating personnel of the company in Cleveland, Ohio, during January. Mr. Hood joined the wire company in May, 1917, as an operating clerk at Worcester, Mass., and subsequently worked his way up through the ranks, becoming president of the company on January 1, 1938.

J. G. Christopher, for the past several years industrial sales manager of the New York City division of the **Socony-Vacuum Oil Company,** has been appointed eastern manager of railroad sales, with headquarters at New York. Mr. Christopher began service in 1910 in the foreign accounting department of the Standard Oil Company of New York, and later became a member of the sales organization of the Vacuum oil company, which merged with the Standard Oil Company of New York. He served in the sales organization in Chicago, Indianapolis, Ind., in upper New York state, and in the New York city area. Mr. Christopher subsequently became lubricating oil manager for Socony-Vacuum's New York City division and later industrial sales manager.

James H. Deaderick, assistant general parts manager of the **Caterpillar Tractor Company** since February, 1941, has been named a vice-president of the company with administrative direction of the parts, service and traffic departments. Mr. Deaderick studied at the University of California until 1925, leaving to engage in the contracting business. He joined the San Leandro, Calif., offices of the Caterpillar Tractor Company as a service department employee in 1929 and was transferred to Peoria, Ill., in 1930, and subsequently appointed assistant service manager in 1933. He returned to California as western service manager in 1934 and became assistant sales manager of the western division in 1939. He returned to Peoria in 1941 when he was made assistant general parts manager.

Herman Franck, general superintendent of the Dunkirk, N. Y., plant of the **American Locomotive Company,** has been appointed plant manager, to succeed the late Edmund F. Boswell, who died last November. **Eugene Murphy,** superintendent of the plate shop at Dunkirk and an employee of the company for 30 years, succeeds Mr. Franck as general superintendent. Other new appointments at the Dunkirk plant include the following: **Robert Moore,** assistant superintendent in connection with pipe, exchanger and gun work; **Arthur Ganslow,** assistant superintendent in charge of exchanger work; **Andrew Groesch,** foreman of the plate shop; and **Joseph Langenstien,** foreman of the machine shop.

Mr. Franck joined the American Locomotive Company two years after his graduation from Union college in 1913, and worked at the company's plants at Schenectady, N. Y., Paterson, N. J., and Chester, Pa., and in the engineering department at the New York office. He was appointed general superintendent at the Dunkirk plant in 1940, to direct its conversion to war production.

OBITUARY

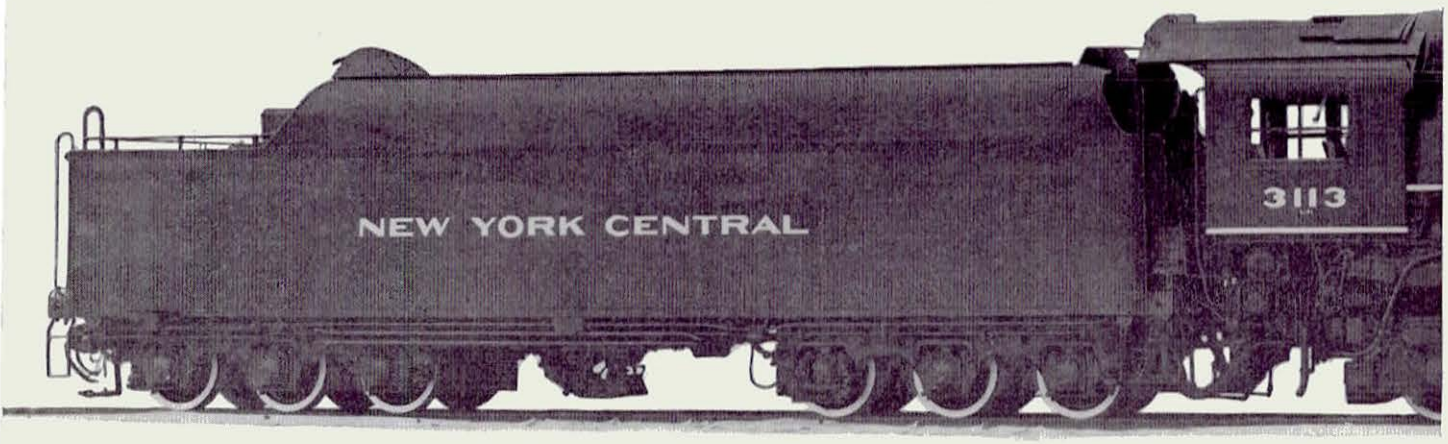
William J. Harris, vice-president in charge of purchases for the American Car & Foundry Co. and its subsidiaries, died February 7. He was 68 years of age. Mr. Harris had been employed with a. c. f. and its predecessor companies for more than 50 years. He was born at Swansea, Wales, and came to the United States in 1880. He was educated in the public schools of Berwick, Pa., and in 1889 be-

William J. Harris

gan work as a shipping clerk in the rolling mill of the Jackson & Woodin Manufacturing Co. at Berwick. When that company was acquired by the American Car & Foundry Co. in 1899, Mr. Harris became bookkeeper for the latter company and subsequently received a series of pro-

News Department continued on second left-hand page

LIMA MORE POWER TO A



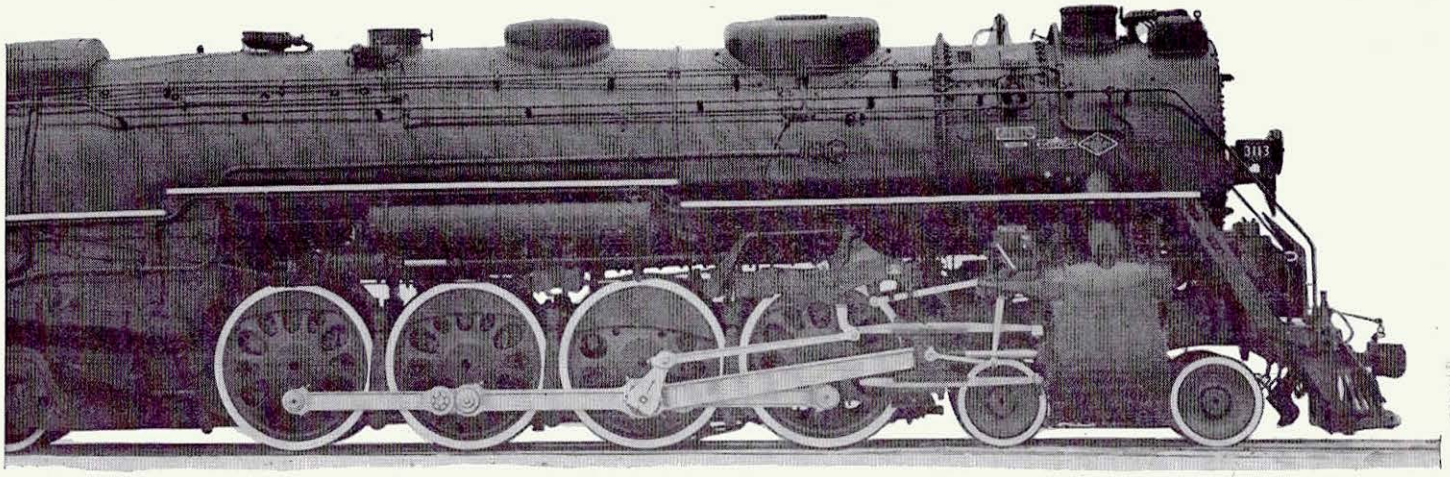
New York Central

WEIGHT IN WORKING ORDER, POUNDS				
On Drivers	Engine Truck	Trailing Truck	Total Engine	Tender 2/3 Capacity Loaded
265,800	73,100	58,400	397,300	305,500
WHEEL BASE			TRACTIVE EFFORT	FACTOR OF ADHESION
Driving	Engine.	Engine & Tender	Main Cylinders	
19′—0″	43′—1″	95′—11½″	59,900	4.44
BOILER		CYLINDERS		DRIVING WHEEL
Diameter	Pressure	Diameter	Stroke	Diameter
84 5/16″ OD at Front	250 lbs.	26″	30″	72″

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS

FIGHTING AMERICA!



Twenty-five more of these 4-8-2 type Lima-built locomotives are going into service on the New York Central.

No gradual "breaking in" and adjustment period for these freight haulers. There are cars to be moved. So this new power is going right to work and is already carrying its share of the load.

INCORPORATED, LIMA, OHIO

motions until he became supply agent in the Berwick district. In 1920 he was transferred to New York as assistant purchasing agent and in 1923 became purchasing agent for the entire a. c. f. organization. He was elected vice-president in charge of purchases in 1933.

Albert H. Reiber, vice-president in charge of development and research of the Teletype Corporation, Chicago, died in Rochester, Minn., on February 1.

Samuel B. Fortenbaugh, retired railway electrification engineer formerly with the General Electric Company, died on February 5. He was 73 years of age. Mr. Fortenbaugh joined the engineering department of the General Electric Company in 1906. In 1911 he went to South America on a special mission for the W. R. Grace Company, and in 1922 to Sao Paulo, Brazil, for the General Electric Company in connection with the electrification of the Paulista Railway Company. He also was engaged in electrification of railroads in South Africa and Russia. He retired in 1932.

STANLEY P. HEALEY, traveling agent for the Canadian National at Hong Kong until the Japs threw him into a concentration camp, whence he was subsequently liberated in the interchange of diplomats, has been granted a leave of absence by the C. N. R. to accept a commission as a lieutenant in the United States Navy. Mr. Healey had served with the Canadian National in Japan and China since 1937. He speaks, reads, and writes Japanese and Chinese and for this reason should be of great assistance to the Navy in connection with Japanese operations.

Construction

New York Bill Postpones Grade Crossing Eliminations

Under the provisions of a bill introduced in the New York State Senate and referred to the Public Service committee, chapter 195 of the laws of 1941 is amended to authorize the Public Service Commission to determine, after public hearings, whether or not conditions at any grade crossing listed in the state's elimination program make immediate elimination unnecessary and to direct, in that event, that elimination proceedings be postponed for not more than two years.

D. & R. G. W. Improvement Program

The Denver & Rio Grande Western plans to complete the following improvements in 1943:—Convert the narrow gage line, Montrose, Colo., to Ridgway, to standard gage at an approximate cost of $27,450. Make major improvements and a grade revision at bridge No. 328.70 on the main line at a cost of $23,551. Construct additional yard tracks and change present tracks at Provo, Utah, to provide facilities to handle increase business, at an approximate cost of $154,587. Construct additional yard tracks and change present tracks at Helper, Utah, at an approximate cost of $67,000. Construct additional passing tracks, interchange tracks, grade revisions and make a line change in connection with the rehabilitation of the Sunnyside (Utah) branch line, at an approximate cost of $147,000. Relocate the main line from Sixth West to Fourth West streets, Salt Lake City, Utah, with necessary connecting tracks, signal protection, etc., at an approximate cost of $131,500. Install centralized traffic control between Agate, Utah, to Helper (about 126 miles), and extend passing tracks, etc., at an approximate cost of $908,000. Install 26 miles of automatic block signals and extend certain tracks from Kremmling, Colo., to Bond, at an approximate cost of $88,000. Install a water station at Cedar, Utah, by the construction of a pipe line from Big Springs Ranch, necessary reservoirs and a water treating plant, and replace treating plant equipment at Green River, Utah, at an approximate cost of $106,500. Construct a 300,000-gal. treating and storage tank, with a chemical house for treating water, at Thistle, Utah, at an approximate cost of $22,975. Construct a brick and tile addition to the general store at Burnham, Colo., at an approximate cost of $25,000. Slope and clean cut and shift the track away from a slide slope between Mileposts 434 and 434.75 on the main line, at an approximate cost of $25,000. Replace bridge No. 13.19 on the main line, a 154-ft. trestle, with a steel and concrete structure, at an approximate cost of $21,437. Replace bridge No. 203.08-S, an 84-ft. trestle, with a steel and concrete structure, at an approximate cost of $21,700. Line and grade revision Milepost 609.10 and 610.34 on the main line, and move Farnham passing track, at an approximate cost of $73,600. Construct a 5,087-ft. extension to the house track, a 265-ft. bad-order track, and a 262-ft. crossover at Soldier Summit, Utah, at an approximate cost of $21,000. Extend the second main track from Milepost 702.5 to Milepost 708.3 on the main line and retire various side tracks to facilitate additional business, at an approximate cost of $162,929. Install automatic block signals from Layton, Utah, to Roy, at an approximate cost of $28,162. Extend three stalls of the roundhouse and install a drop pit and drop table at Salt Lake City, Utah, at an approximate cost of $60,000.

CHICAGO, BURLINGTON & QUINCY.—Construction of a new modern hump yard at Lincoln, Neb., which will cost approximately $1,300,000, will commence as quickly as authority for necessary materials can be obtained from the War Production Board. The new Lincoln yard will have receiving, classification and departure yards, and in addition to grading, drainage, buildings, signals, and telephone and telegraph facilities, the yard will involve the installation of 14 electro-pneumatic car retarders, the construction of approximately 33 miles of trackage, including 214 switches, and the replacing of approximately 30 miles of tracks, including 181 switches. Used rail and supplies will be employed wherever practicable to minimize the requirements for new materials. The yard will be illuminated with floodlights to facilitate night switching and short-wave radios will be installed on the switch engines in the yard to permit communication at all times between the yard office and switch crews.

The new yard is expected to result in the saving of at least 175,930 car-days and 2,555 engine-days annually, making cars and engines available for handling other busi-

* * *

B. & M. Presents Proceeds from Victory Ball to United Seamen's Service

Edward J. Gallagher (left), treasurer of the B. & M., presents check for $7906.25 to Douglas P. Falconer, national executive director of the United Seamen's Service, while Yeoman Virginia Gundacher of the U. S. Navy and Harold D. Ulrich, representing standard labor organizations, look on. The check represented the proceeds from the War Bond Victory Ball recently conducted by management and employees of the B. & M. in Boston for the Merchant Marine relief fund.

News Department continued on next left-hand page

FUEL

a strategic material

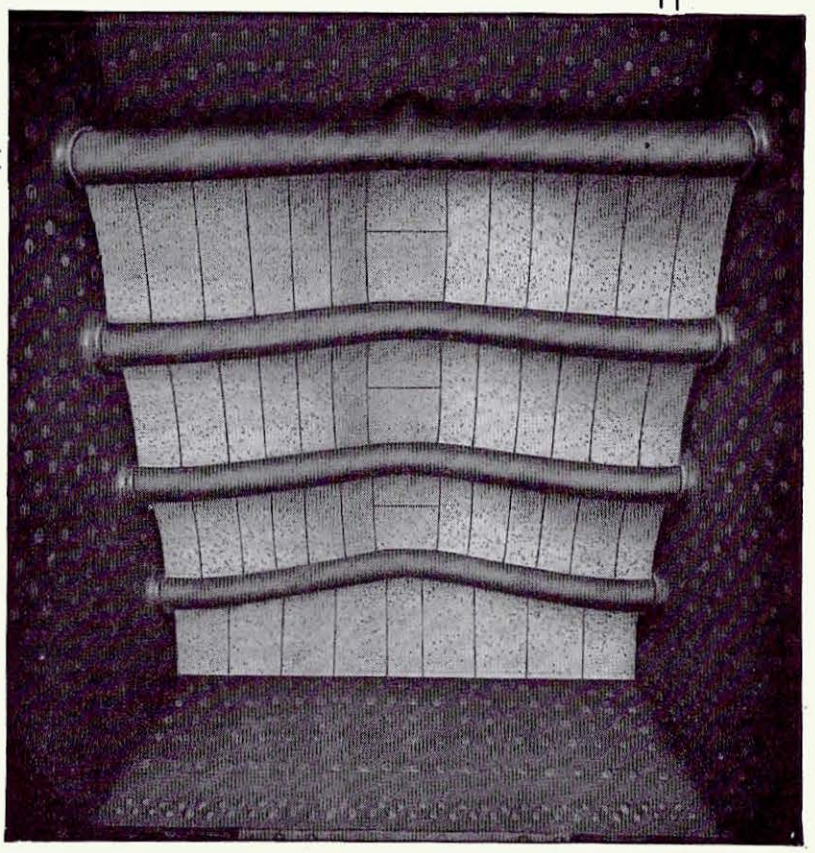
CONSERVED

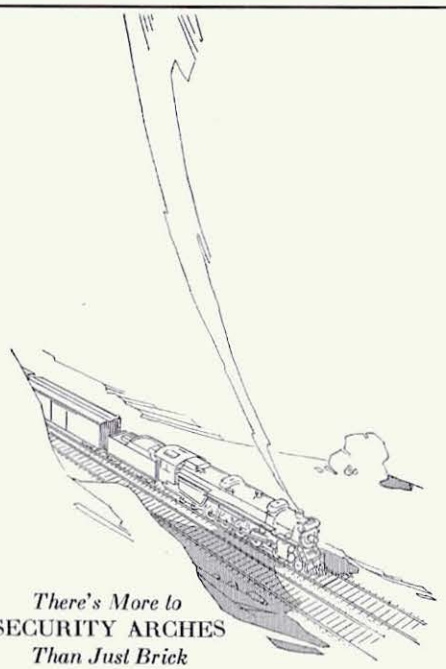
with Security Sectional Arches

Today, more than ever, fuel is one of our strategic materials. Making every pound of fuel produce the maximum amount of steam not only conserves this strategic material but also the cars required to transport it.

For over 32 years, Security Sectional Arches have been saving fuel on all types of steam locomotives.

But experience has proved that only with a *complete* Arch can maximum fuel economy be realized.

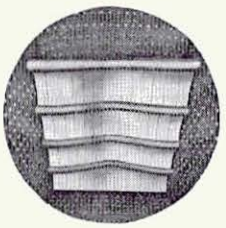




There's More to
SECURITY ARCHES
Than Just Brick

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists



AMERICAN ARCH CO.
INCORPORATED
60 EAST 42nd STREET, NEW YORK, N. Y.

Locomotive Combustion Specialists

ness and avoiding the necessity of acquiring additional new equipment. The new yard will also save thousands of car and locomotive days by reducing the amount of switching required at other points on the railroad.

DELAWARE & HUDSON.—This railroad has authorized extensions of passing sidings at Ft. Edward, N. Y., at estimated cost of $27,960, and at Ballston Spa, N. Y., at estimated cost of $33,600.

DENVER & RIO GRANDE WESTERN.—A contract amounting to $28,820 has been awarded to J. E. Pepper, for the construction of one 300,000-gal. water treating and storage tank at Cedar, Utah; three fuel oil tanks at Burnham, Colo.; another at Roper, Utah, and one at Pueblo, Colo.

DENVER & RIO GRANDE WESTERN.—A contract amounting to $100,000 has been awarded to Claybaugh, Simpson & Reiff, for grading passing tracks, interchange tracks, and a grade revision and line change in connection with the rehabilitation of the Sunnyside branch, Utah; also trenching, laying and back-filling a nine-mile pipe line from Big Springs, Utah, to Cedar.

DENVER & SALT LAKE.—A contract amounting to $25,969 has been awarded to Harvey Stenmark for the construction of buildings in connection with the installation of ice freezing and harvesting facilities at Gore (near Kremmling), Colo.

NEW YORK CENTRAL.—This railroad has awarded a contract for dredging on the north side of Pier 9 at Weehawken, N. J., to the Henry DuBois' Sons Co., Inc., of New York.

NEW YORK CENTRAL.—This road has awarded a contract to the Columbia Construction Company, Indianapolis, Ind., for the construction of a water reservoir, with a 1,000,000 gallon capacity, at Beech Grove, Ind.

KEPT "SECRET WEAPON" SECRET.—Since June, 1942, more than 10,000 employees at the Schenectady, N. Y., plant of the American Locomotive Company kept the secret of the M-7, a 105 mm. howitzer mounted on a tank chassis, with an anti-aircraft gun for protection against overhead attack, which is generally credited with having helped turn the tide in the battle of Libya. The gun, which can hit objectives seven miles distant, possesses extreme mobility and, with a crew of four, can travel at a rate of 35 miles an hour. Given a wooden model by the Army early last spring, engineers and draftsmen of the American Locomotive Company designed and built the experimental models of the M-7 within a few weeks. A few dozen were tested out at the Aberdeen, Md., proving grounds, and thousands more promptly ordered. The M-7 rumbled through the streets of Schenectady since last June and was seen daily on flatcars, but not a word leaked out.

Abandonments

"Superfluous branches we lop away, that bearing boughs may live."

ATCHISON, TOPEKA & SANTA FE.—Examiner Paul C. Albus has recommended in a proposed report that the Interstate Commerce Commission's Division 4 authorize this road and the New Mexico Central, lessor, to abandon the latter's 11.6-mile line from Moriarty, N. M., to Stanley.

ATCHISON, TOPEKA & SANTA FE.—At the request of the applicants, Division 4 of the Interstate Commerce Commission has dismissed the application of this company's subsidiaries, the Cane Belt and the Gulf, Colorado & Santa Fe, to abandon a line from Bay City, Tex., to Matagorda, 19.5 miles.

BALTIMORE & OHIO.—Division 4 of the Interstate Commerce Commission has authorized this company to abandon its line from Blue Bell, Ohio, to Cumberland, 4.59 miles.

NASHVILLE - FRANKLIN. — This electric interurban has been authorized by the Interstate Commerce Commission, Division 4, to abandon its entire line between Nashville, Tenn., and Franklin, 16.5 miles.

TEXAS & PACIFIC.—Division 4 of the Interstate Commerce Commission has authorized this company to abandon its line from Longbridge, La., to Hamburg, 5.5 miles, so that operations on an alternate line, involving trackage rights over a line of the Louisiana & Arkansas, may be undertaken.

SOUTHERN.—Unless protestants agree to his "suggested final reprieve for their railroad," Examiner Ralph R. Molster would have the Interstate Commerce Commission's Division 4 authorize the Southern to abandon its Taylorsville Branch, extending from Statesville, N. C., to Taylorsville, 18.5 miles. The application in Finance Docket No. 13908 was filed August 15, 1942, after a previous one, filed December 29, 1941, had been dismissed without prejudice on February 12, 1942, at the applicant's request. The "brief interval" between the withdrawal and renewal seemed to the examiner "a brief space for the realization of whatever hope" the applicant may have had in the latter connection; thus his "suggested final reprieve." It contemplates that protestants shall make a stipulation to be bound by traffic and earnings statistics for the full year 1942 and six months of 1943. If it appears from such information "that there has been no substantial increase in the use or *earnings*" of the branch, then the examiner would authorize the abandonment. On the other hand, he would deny the application without prejudice if the additional information shows a substantial increase in patronage or earnings. If the protestants decline to make the stipulation, he would authorize the abandonment now, and have the commission retain jurisdiction as to the protection of employees who might be affected.

UNION PACIFIC.—The Interstate Commerce Commission by Commissioner Porter has extended for 60 days the effective date of the certificate authorizing this company to abandon operation of, and the Oregon Short Line to abandon, a line from Montpelier, Ida., to Paris, 9.5 miles.

VIRGINIAN.—This company has applied to the Interstate Commerce Commission for authority to abandon operation under trackage rights over a line of the Chesapeake & Ohio from Price Hill Junction, W. Va., to Price Hill, 2.42 miles.

WABASH.—Division 4 of the Interstate Commerce Commission has denied this company's application for authority to abandon its line from Bement, Ill., to Sullivan, 23.16 miles, on the ground that it has been operated at a profit for several years and evidence has not been offered to indicate that this situation will not continue.

This company's application to abandon its branch from Helmer, Ind., to Stroh, 4.83 miles, also was denied by Division 4 of the Interstate Commerce Commission, but without prejudice to renewal if after one year it can be shown that operations can continue only at a loss.

Equipment and Supplies

FREIGHT CARS

THE NEW YORK CENTRAL is reported to have ordered 1,300 new freight cars, including 1,000 gondola cars and 300 flat cars, from Despatch Shops, Inc. The cars will be built as part of the War Production Board's 20,000-car program authorized for the first six months of 1943.

IRON AND STEEL

THE BANGOR & AROOSTOOK has ordered 3,211 tons of rail from the Bethlehem Steel Company.

THE NEW YORK, ONTARIO & WESTERN has placed an order for 1,400 tons of rail with the Bethlehem Steel Company.

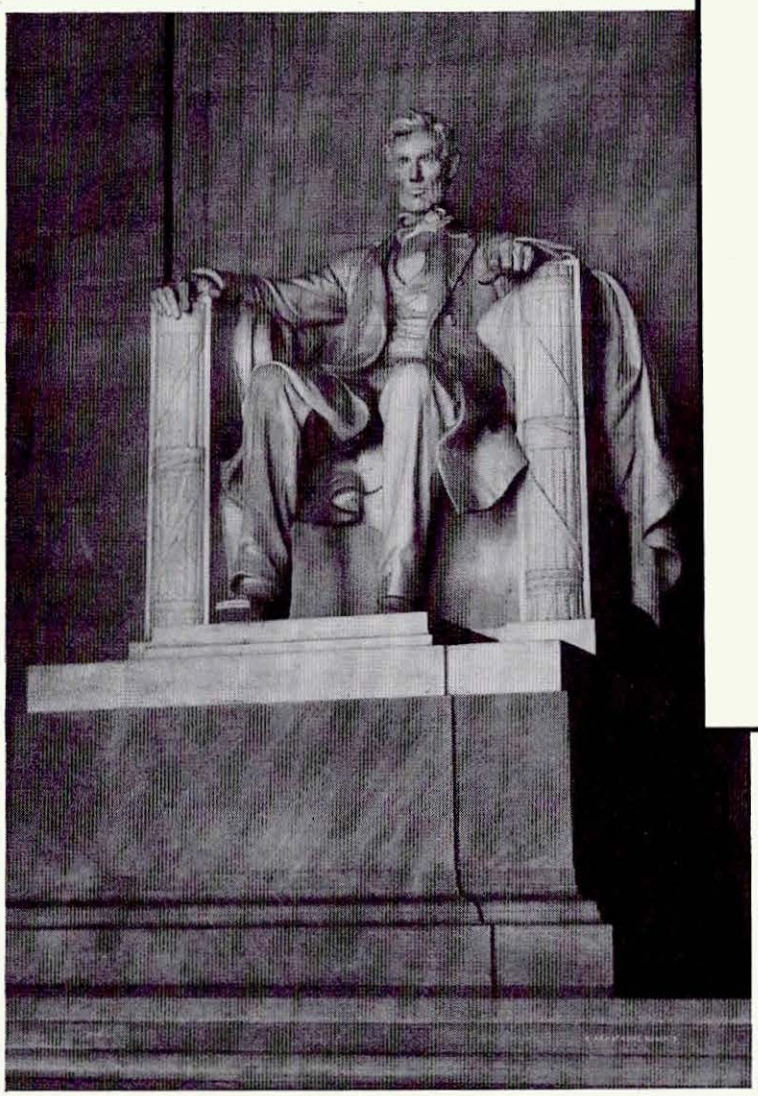
BRITON'S APPROVE A. C. F. TANKS.—Light tanks produced by the American Car & Foundry Co. have won high praise from the British eighth army in North Africa, according to a letter received by Charles J. Hardy, president of the company, from Major General L. H. Campbell, Jr., chief of army ordnance. General Campbell's letter states, "This vehicle has proven to be especially valuable in pursuit and its reliability on the battlefield has been most gratifying." Among the most prized possessions of the a. c. f. tank factory is a huge Nazi banner, measuring 9 ft. by 27 ft., which was captured from General Rommel's headquarters in Libya by one of these light tanks.

News Department continued on next left-hand page

IDEALS

America was founded on ideals and today we are fighting to preserve those ideals.

This company too was founded on ideals. It was established more than thirty years ago to make available to our railroads, equipment that embodied good and sound engineering principles. There has never been any deviation from this policy and today locomotive equipment bearing the name ELESCO represents the best.



ELESCO

A-1563

SUPERHEATERS • FEEDWATER HEATERS
AMERICAN THROTTLES • STEAM DRYERS
EXHAUST STEAM INJECTORS • PYROMETERS

THE SUPERHEATER COMPANY

Representative of
AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street, NEW YORK
122 S. Michigan Blvd., CHICAGO
• • •
Montreal, Canada
THE SUPERHEATER COMPANY, LTD.

Financial

ATCHISON, TOPEKA & SANTA FE.—*Lease of Subsidiaries.*—Division 4 of the Interstate Commerce Commission has authorized the Panhandle & Santa Fe, controlled by this company through ownership of its capital stock, to modify its leases of the properties of certain other companies of which it is also the sole owner in order to give effect to depreciation allowances on fixed property. The lessee companies are the Clinton-Oklahoma-Western of Texas; Clinton & Oklahoma Western; Kansas City, Mexico & Orient of Texas; North Plains & Santa Fe; North Texas & Santa Fe; South Plains & Santa Fe; Pecos River; and Pecos & Northern Texas.

ERIE.—*Refinances R. F. C. Loan.*—The Erie has applied to the Interstate Commerce Commission for authority to issue $14,000,000 of first consolidated mortgage 3½ per cent bonds, Series D. Sale of the bonds to Morgan Stanley & Co., subject to I. C. C. approval, at a price of 96 was announced by the railroad on February 3 and the bonds were offered to the public at 97½ on February 5. The proposed issue matures February 1, 1958, and is redeemable before maturity at prices ranging from 102½ until February 1, 1946, to 100 after February 1, 1956. Interest is payable semi-annually on February 1 and August 1, and an annual sinking fund payment of $140,000 is provided.

Purpose of the new issue is to reimburse the railroad for the repurchase from the Reconstruction Finance Corporation of $14,000,000 of collateral trust 4 per cent notes, due January 1, 1953, at 103⅝ and accrued interest. The price paid for this repurchase, which was announced February 1, represents a premium of $507,500. The R. F. C. loan was made in December, 1941, in connection with the railroad's reorganization.

On February 3, in a letter to Carl E. Newton, president of the Chesapeake & Ohio, which owns 43,000 shares of Erie common stock and 268,750 warrants, Robert R. Young, chairman of the Alleghany Corporation, expressed opposition to the Erie's new issue declaring "better prices for its securities could be obtained by competition among underwriting houses than by private dealings with a favored one." On February 4, Mr. Newton issued a statement declaring in part:

"If this proposed arrangement is carried through on these terms, the Erie will be paying an interest rate of 3.85 per cent for new money in order to pay off an equal amount of existing bonded debt which is now costing the Erie only 3.56 per cent to carry. This financial operation would cost the Erie an additional interest charge of $40,600 per year and would require an immediate cash outlay of $1,067,500 which would not be needed if the new 15-year bonds were not now substituted for the existing 10-year bonds."

He said that another qualified underwriting group had sought to present a more favorable bid for the new bonds and that "if this proposed financing should be pushed through, ... the C. & O. will have no option but to seek reparation from the individual directors of the Erie on behalf of the C. & O. and all other stockholders of that road." A protest on the lack of competitive bidding in this issue was also made by Cyrus S. Eaton, of Otis & Co., Cleveland, Ohio, investment bankers, in a telegram to the I. C. C. charging that independent bankers have asked for an opportunity to bid on the issue and urging the Commission to require competitive bidding.

Robert E. Woodruff, president of the Erie, answering these criticisms, declared that competitive bidding "would have caused needless delay and risk," and said the Erie had learned on January 29 that the R. F. C. had received an offer to purchase a large part of the Erie's collateral trust notes and intended to accept it. "An opportunity, however, was still offered to Erie to buy this issue from the R. F. C., but only if an acceptable offer was made that day, and it was found that we could buy them at a price of 103⅝, which would save us $192,750, compared with buying them later at their call price of 105." Mr. Woodruff denied the transaction would cost the Erie additional interest of $40,600 a year stating that "giving consideration to all costs in connection with refinancing and the effect of federal taxes, there will be a reduction in cost to the Erie of $4,200 per annum."

PENNSYLVANIA. — *Appeals Pennroad Judgment.*—The Pennsylvania on February 8 filed an appeal with the United States Circuit Court of Appeals in Philadelphia, Pa., against a judgment of the United States district court on January 19 holding the Pennsylvania liable for $22,104,515 to the Pennroad Corporation. (See previous item, *Railway Age* of January 23, page 266.)

PENNSYLVANIA.—*New Equipment Trust Issue.*—The Pennsylvania has invited bids for the purchase of $6,450,000 of equipment trust certificates, which are part of a proposed aggregate issue of $12,240,000 of certificates under the railroad's equipment trust series N, to finance ultimately the construction and acquisition of five electric passenger locomotives, 51 steam locomotives and tenders, 30 steam locomotive tenders, 6 Diesel-electric switching locomotives, and 1,000 gondola cars. With the exception of the Diesel-electric switching locomotives, the equipment is to be constructed in the company's shops, and cost of all the equipment is estimated at $15,300,000. The certificates will be dated March 1, 1943, and mature in 15 annual installments.

PENNSYLVANIA. — *Equipment Trust.* — This company has applied to the Interstate Commerce Commission for authority to assume liability for $6,450,000 of equipment trust certificates, series N, to be applied to the purchase of part of certain equipment of a total cost of about $15,300,000, which will be supplemented at a later date by an application for authority to assume additional liability if more of the equipment becomes available. It is proposed to purchase under this arrangement five electric passenger locomotives, 51 steam locomotives, 30 locomotive tenders, six Diesel-electric switching locomotives, and 1,000 gondolas, but authority is sought to substitute other equipment of equivalent value under the trust if portions of the specified equipment is not available.

SOUTHERN PACIFIC.—*Promissory Notes.* —Moving to adjust its equipment obligations in such a way as to remove any possible doubt that they comprise "borrowed capital" within the meaning of the Excess Profits Tax Law, the Southern Pacific has applied to the Interstate Commerce Commission for authority to issue promissory notes in the amount of $6,095,566.52. They are to be evidence of, but not in payment for, the unpaid principal under 23 equipment-purchase contracts (conditional sales or lease agreements) entered between April 6, 1939, and June 20, 1942. Monthly or quarterly payments will go on as before, with such payments on the promissory notes constituting also payments under the conditional sales or lease agreements.

TEXAS & PACIFIC.—*Trackage Rights.*—Division 4 of the Interstate Commerce Commission has authorized this company to arrange to operate under trackage rights over a line of the Louisiana & Arkansas from Mansura, La., to Hamburg, 6.63 miles, in lieu of continuing operations on its own alternate line which it has been authorized to abandon.

Average Price of Stocks and Bonds

	Feb. 9	Last week	Last year
Average price of 20 representative railway stocks..	30.57	30.93	28.69
Average price of 20 representative railway bonds..	71.47	71.75	65.88

Dividends Declared

International Railway of Central America.—5 Per Cent Preferred, $1.25, payable February 15 to holders of record February 8.

North Carolina.—Guaranteed, $3.50, semi-annually, payable February 1 to holders of record January 21.

Oswego & Syracuse.—$2.25, semi-annually, payable February 20 to holders of record February 5.

THE SOUTH AFRICAN RAILWAYS are reported to have released about 10,000 of their employees thus far for active war service. To help fill the jobs thus left vacant, more and more women are being hired. At present there are more than 300 women so employed in railroad shops in Salt River, Durban, East London, Bloemfontein and Uitenhage, according to the British Supply Council in North America.

Much of the work done in these shops is directly concerned with war production. The majority of the women hired have been put on piece work in the trimming shops, others are making munitions boxes in the carpenters shops, while still another group is engaged in fuse work in the machine shops. Work is divided into three 8-hour shifts.

In engaging women workers, preference is given first to widows and single women and to those whose husbands are in active service—especially those whose husbands are being held as prisoners of war. Their ages range from 17 to 50 years. Experience has shown that the younger women are better as machine operators, while the older women show up best where stability is required.

News Department continued on second right-hand page

A HIGH HONOR FOR YOUR DAUGHTER

THE NAZIS look upon us as a degenerate nation. But they have a great respect for our accomplishments. And, if they win, they may decide that we have something in our blood which they can use in building their master race.

For they're great believers in eugenics, these Nazis. They're strong for selective breeding.

You they may cast aside and put to some ignominious task, such as scrubbing the sidewalks or sweeping the streets. But your daughter...well, if she's young and healthy and strong, a Gauleiter with an eye for beauty may decide she is a perfect specimen for one of their experimental camps.

A high honor for your daughter...

Does this seem a story spun in the realm of fantasy? It isn't. It is now happening, all through Europe. The latest experiment of the victorious Nazis has been to ship Austrian and Hungarian girls to the Northern countries. The result of these unions...unblessed, of course, by matrimony...will not be known for some time. But the Nazis, you must admit, are not above innovation.

Two, three, four, five years from now they may ship American girls to some far corner of the earth...may select your daughter...if *you* relax, if *you* fail to do your part now. If you say, hopefully, "It can't happen here. We can't lose."

No, we can't lose. We can't afford to. We must not. Else all the terrors, all the degradation, all the misery and suffering that have been loosed upon Europe will be loosed upon us. We of all people will not escape it. We shall be the chosen ...we shall be the elect...in the Nazi scheme of things.

We who have only just begun to win. We who risk the danger of resting on our new-won laurels and considering the job done.

This is no time to relax. This is the time...the opportune time...to do all we can to get this war over sooner.

We *must* measure up to the job!

AMERICAN LOCOMOTIVE

30 CHURCH ST., NEW YORK, N. Y. • MANUFACTURERS OF TANKS • GUN CARRIAGES • ARMY AND NAVY ORDNANCE • STEAM AND DIESEL LOCOMOTIVES

...YOU HELPED US WIN IT

Without your help, we could not have gained the high honor of the Army-Navy "E" production award. Your co-operation permitted us to produce the valves it took.

More than 3,000 go into every battleship. How many do you think are needed to build America's *two-ocean* Navy? The ever-growing Liberty maritime fleet? How many thousands more for barracks, cantonments, and plants turning out Army equipment?

Doubled and re-doubled were our facilities beginning even before the war. Yet, only because you helped, were we able to meet the vast demands for Crane valves.

You made that possible by conserving the valves installed in your lines—by giving them the best of care—by *"making them do"* in the face of critical materials shortages. And most likely, as so many plants are doing, by utilizing the valuable tips in Crane "Piping Pointers" Bulletins on getting better and longer service from piping equipment.

As a result, on both industrial and fighting fronts, more and more Crane valves are today quickening the pace of America's march to Victory—assuring dependable flow control of every vital fluid.

And here at Crane, the Army-Navy "E" is spurring us on in making even more valves—helping us get our part and your part of this wartime job done faster.

Crane Co., 836 South Michigan Ave., Chicago, Illinois

"Piping Pointers" Bulletins—one of Crane Co.'s wartime aids to industry for getting better and longer service from valves. Supplied free on request.

CRANE VALVES

Railway Officers

EXECUTIVE

C. C. Cary, vice-president of the Sabine & Neches, has been elected president, with headquarters as before at Deweyville, Tex.

G. M. LaRiviere has been appointed executive general agent of the Atlantic Coast Line, with headquarters at Washington, D. C.

Leon E. Marchebout, treasurer and assistant secretary of the Southern Pacific of Mexico, has been appointed assistant to the president in charge of purchases and stores, with headquarters as before at Guadalajara, Jalisco, Mex.

Robert S. Macfarlane, western counsel and assistant to the president of the Northern Pacific, has been elected vice-president-assistant to the president, with headquarters as before at Seattle, Wash. Mr. Macfarlane was born at Minneapolis, Minn., on January 15, 1899, and graduated from the University of Washington in 1921. He practiced law in Seattle and, in 1930, was elected to the King County Superior Court bench. Mr. Macfarlane entered railroad service in 1934 as assistant western counsel of the Northern Pacific at Seattle and, in 1937, was promoted to western counsel, with the same headquarters. In 1940 he was advanced to western counsel and assistant to the president, and in the same year he was elected president of the Walla Walla Valley, which position he still holds. Mr. Macfarlane will continue to serve as western counsel of the Northern Pacific.

Robert S. Macfarlane

Following completion of the reorganization of the Ann Arbor, the receivership of which was terminated on December 31, 1942, the following officers have been elected: **Norman B. Pitcairn,** receiver, has been elected president; **N. S. Brown,** consulting counsel for the receivers, has been elected vice-president; **A. K. Atkinson,** chief financial and accounting officer, has been elected vice-president, secretary and treasurer; **G. G. Early,** chief traffic officer, has been elected vice-president, traffic; and **G. H. Sido,** chief operating officer, has been elected vice-president, operations, and general manager. The above officers are also officers of the Wabash, with the exception of Mr. Brown, who retired on October 1. Their election to similar positions on that road following its reorganization on May 21, 1942, was reported in the *Railway Age* of May 30, 1942.

Arthur P. Russell, vice-president of the New York, New Haven & Hartford at Boston, Mass., has asked to be retired from active duty, effective March 1. At the request of the trustees, Mr. Russell has consented to continue in a consulting capacity, maintaining his present office in the South station, Boston.

Edward Edson has been elected president, and **L. A. Keller,** vice-president of the Wyandotte Terminal, with headquarters at Wyandotte, Mich.

William D. Wiggins, whose promotion to vice-president—engineering of the Pennsylvania was announced in the *Railway Age* of February 6, was born on April 28, 1873, at Richmond, Ind. Mr. Wiggins received a B.S. degree from Rose Polytechnic Institute in 1895, and not long thereafter entered railroad service as an assistant in the engineer corps of the Pittsburgh, Cincinnati, Chicago & St. Louis (now Pennsylvania), serving in that capacity at Logansport, Ind., and at Pittsburgh, Pa. He held various positions in the maintenance of way and construction departments, and on June 10, 1901, was appointed engineer of maintenance of way of the Cincinnati & Muskingum Valley (now Pennsylvania) at Zanesville, Ohio, serving in that capacity until October of the same year, when he became engineer of the Cleveland & Marietta (now Pennsylvania). In 1902 he became engineer, maintenance of way, of the Toledo, Walholding Valley & Ohio (now Pennsylvania) at Toledo, Ohio, and in 1904 returned to the Pittsburgh, Cincinnati, Chicago & St. Louis as division engineer at Pittsburgh. In 1912, Mr. Wiggins became division superintendent of the Vandalia (now Pennsylvania) at Decatur, Ill., and in 1913 was appointed valuation engineer of the Pennsylvania lines west of Pittsburgh, with headquarters at Pittsburgh, serving in that capacity during federal control of the railroads. On March 1, 1920, upon the termination of federal control, he was appointed chief engineer of maintenance of way, Central region, with headquarters at Pittsburgh, and on April 1, 1926, he was promoted to assistant chief engineer of the Pennsylvania with the same headquarters. On February 1, 1927, he was appointed to the newly-created position of chief engineer of the Central region at Pittsburgh and on October 1, 1935, he became acting chief engineer of the Pennsylvania at Philadelphia, Pa. Mr. Wiggins was appointed chief engineer at Philadelphia in 1936 and remained in that position until his recent appointment.

William D. Wiggins

FINANCIAL, LEGAL AND ACCOUNTING

Frank C. Nicodemus, Jr., receiver of the Ann Arbor, the receivership of which was terminated on December 31, 1942, has been appointed consulting counsel, with headquarters at New York.

Lionel Cote, who has been employed by the Canadian National since 1931, has been promoted to chief solicitor of the Quebec lines of that road, with headquarters at Montreal, Que., succeeding **Charles Auguste deLotbiniere Harwood, K. C.,** who has retired from that position, which he held since 1923. **Chautauguay Perrault,** a lecturer in civil law at McGill university, at Toronto, Ont., has been appointed assistant solicitor, with headquarters at Montreal.

Thomas P. Scott, whose promotion to freight claim agent of the Erie, with headquarters at Cleveland, Ohio, was reported in the *Railway Age* of January 9, was born on January 7, 1890, at Paterson, N. J. He entered railroad service on November 20, 1908, as a clerk of the New York, Susquehanna & Western, at Homestead, N. Y., and from 1914 to 1918 served as agent of various stations on that road. In 1918 he entered the army and on February 18, 1919, became freight claim department inspector of the Erie at New York, being promoted to traveling agent with the same headquarters on September 1, 1923. In 1931 Mr. Scott became district freight claim agent at New York, and on October 1, 1940, was advanced to assistant freight claim agent, with headquarters at Cleveland. He held that position until his new appointment, effective January 1.

OPERATING

M. G. Seigler has been appointed assistant to the general manager of the Nashville, Chattanooga & St. Louis, with headquarters at Nashville, Tenn.

W. R. Laing has been appointed superintendent of the Arkansas & Louisiana Missouri, with headquarters at Monroe, La., succeeding **W. R. Hammock,** who has retired.

Donald E. Mumford has been appointed assistant general safety agent, and

News Department continued on next left-hand page

Edward G. Senger has been appointed assistant to general safety agent, both with headquarters at New York.

C. E. Lister, assistant superintendent of the Canadian Pacific, with headquarters at Lethbridge, Alta., has been appointed supervisor of transportation, with headquarters at Vancouver, B. C.

E. M. Tanner, trainmaster of the Midland Valley, the Kansas, Oklahoma & Gulf, and the Oklahoma City-Ada-Atoka, has been promoted to general superintendent, with headquarters as before at Muskogee, Okla.

T. J. Klauenberg, trainmaster of the East End, Baltimore division, of the Baltimore & Ohio, has been appointed assistant division superintendent on the Baltimore division, a new position. **J. H. Bradford** has been appointed trainmaster of the East End, Baltimore division, to succeed Mr. Klauenberg.

J. J. Franco, whose promotion to general superintendent of transportation of the National Railways of Mexico was reported in the *Railway Age* of December 19, has been advanced to assistant general manager, with headquarters as before at Mexico City. **J. C. Garcia,** division superintendent at Mexico City, has been promoted to general superintendent of transportation with the same headquarters.

G. H. Jury, acting superintendent of the Central division of the St. Louis-San Francisco, with headquarters at Ft. Smith, Ark., has been transferred to the Eastern division, with headquarters at Springfield, Mo., relieving **M. M. Sisson,** who has been granted a leave of absence due to illness. **Quin Baker,** assistant superintendent at Ft. Scott, Kan., succeeds Mr. Jury at Ft. Smith.

James P. Downey, a member of the Eastern vice-president's staff of the Railway Express Agency at New York, has been appointed superintendent of the City division, succeeding **Homer A. Hanson,** who has retired after 47 years of service. **George A. Colligan,** superintendent of the North Shore-Maine division, has been transferred to the Eastern New York division, with headquarters at Albany, N. Y., succeeding **W. J. O'Maley,** who has been appointed superintendent of organization in the vice-president's office at New York, succeeding Mr. Downey. **Henry G. Groves,** district supervisor, succeeds Mr. Colligan as superintendent of the North Shore-Maine division.

W. C. Pruett, district engineer, South Texas district, of the Missouri-Kansas-Texas, with headquarters at Smithville, Tex., has been promoted to superintendent of the Northwestern district, with headquarters at Wichita Falls, Tex., succeeding **C. W. Campbell,** who has been transferred to the Eastern district, with headquarters at Franklin, Mo. **J. I. Poole** has been appointed assistant superintendent of the Kansas City and Neosho divisions and the Iola branch, with headquarters at Parsons, Kan. **B. A. McDonald** has been appointed assistant superintendent of the St. Louis division, the Columbia branch and the St. Louis-Baden terminal, with headquarters at St. Louis, Mo.

Lowell W. Payne, assistant superintendent of the Indiana Harbor Belt, has been promoted to superintendent, with headquarters as before at Gibson, Ind., succeeding **William P. Lamb,** whose retirement was reported in the *Railway Age* of February 6. **Malcolm M. Bell,** trainmaster at Gibson, has been advanced to assistant superintendent, succeeding Mr. Payne. Mr. Payne was born at Indianapolis, Ind., on May 26, 1889, and entered railroad service in 1906 as a yard clerk of the Big Four at Indianapolis. He held various other positions until March, 1926, when he was advanced to general yardmaster with headquarters at Danville, Ill. He also served as trainmaster of the Danville subdivision of the New York Central, and on July 19, 1935, became trainmaster of the I. H. B., at Gibson. On July 1, 1936, Mr. Payne was advanced to assistant superintendent, with the same headquarters, holding that position until his new appointment, effective February 1.

TRAFFIC

Thomas George Kees, whose promotion to eastern traffic manager of the Chicago Great Western, with headquarters

Thomas George Kees

at New York, was announced in the *Railway Age* of January 16, was born on February 6, 1901, at Evanston, Ill., and was educated at the Evanston Township high school and the Walton School of Commerce. He has been employed by the Chicago Great Western since November 14, 1920. In his new position, Mr. Kees has jurisdiction over agencies at Boston, Mass., Philadelphia, Pa., and New York.

Robert James Scott Weatherston, general freight and passenger agent of the Atlantic region of the Canadian National at Moncton, N. B., has retired from that position. **James H. Norton,** assistant general freight agent at Moncton, and **F. L. Dougan,** district passenger agent at Halifax, N. S., succeed Mr. Weatherston as general freight agent and general passenger agent, respectively, with headquarters at Moncton. Enlargement of the supervisory organization of the Atlantic region by separating the passenger and freight organizations into two complete jurisdictions has been necessitated by the

James H. Norton

great increase in the work and responsibilities of all departments, resulting from the tremendous volume of traffic, both freight and passenger, which has developed throughout the Atlantic region since the outbreak of war.

Mr. Weatherston was born on January 27, 1878, at St. Thomas, Ont. He entered railroad service on July 4, 1893, as a clerk in the transportation department of the Grand Trunk at Hamilton, Ont., serving in that capacity until January 1, 1902, when he was transferred to the traffic department, with the same headquarters. On July 23 of the same year, he was appointed soliciting freight agent at Hamilton, being transferred to Toronto on May 11, 1903, and becoming traveling freight agent at Ottawa, Ont., on June 18, 1906. On June 1, 1907, he returned to Hamilton as chief clerk to the division freight agent. On November 1, 1911, Mr. Weatherston was appointed division freight agent at Stratford, Ont., and was transferred to Ottawa, Ont., on January 31, 1919, to Hamilton in June, 1919 (all of the foregoing while in the employ of the Grand Trunk), and in January, 1920, he also became division freight agent of the Canadian National. He was advanced to general freight agent of the Canadian National at Moncton on April 1, 1927, and on August 1, 1930, Mr. Weatherston became general freight and passenger agent of the Canadian National, with headquarters at Moncton.

Mr. Norton, who was born on April 21, 1884, at Shaftsbury, England, entered railroad service in 1899 as a junior clerk or messenger in the car service department of the Intercolonial (now Canadian National), serving in that department until 1910, when he went with the Canadian Government Railways (now Canadian National) as secretary to the general freight agent. From 1912 to 1917 he was employed as assistant chief clerk in the general freight office, becoming division freight agent at Halifax on the latter date, and advancing to assistant general freight

News Department continued on next left-hand page

HSGI *Wear Resisting* PARTS

Big Mileage Parts

ANY material which gives longer service between renewals contributes greatly to the war-time efforts of the railroads.

Wear-resisting parts made from HUNT-SPILLER *Air Furnace* GUN IRON are helping the railroads to increase the service life of many locomotive components, conserve materials and manpower and increase the availability of power at a time when every unit is of vital importance to victory transportation.

HSGI
Reg. U. S. Trade Mark
Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Finished Parts
Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings, All Shapes
Light Weight Valves
Cylinder Liners and Pistons
for Diesel Service

HUNT-SPILLER MFG. CORPORATION
V. W. Ellet, *President* — E. J. Fuller, *Vice-Pres. & Gen. Mgr.*

383 Dorchester Ave. *Office & Works* South Boston, Mass.

Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

HUNT-SPILLER *Air Furnace* GUN IRON

agent of the Canadian National at Moncton in 1919, which position he held until his recent promotion to general freight agent at that point.

R. G. Carlson has been appointed general agent of the Green Bay & Western with headquarters at New York.

J. Y. Cassell, assistant general freight agent of the Akron, Canton & Youngstown, has been transferred from St. Louis, Mo., to Akron, Ohio.

Lawrence W. Brown has been appointed district freight agent of the Baltimore & Ohio, with headquarters at Washington, D. C., succeeding **John J. Collins,** who has been promoted.

R. G. Carlson, general agent of the Delaware, Lackawanna & Western at Chicago, has been appointed general agent of the Green Bay & Western, with headquarters at New York.

William Jardine has been appointed assistant general freight agent of the Southern, with headquarters at Washington, D. C., and **Marshall H. Schell** has been appointed district freight agent at Raleigh, N. C.

ENGINEERING & SIGNALING

C. F. Trowbridge, whose appointment as assistant chief engineer of the Pennsylvania system, with headquarters at Philadelphia, Pa., was announced in the *Railway Age* of February 6, is a native of Lynn, Mass., and a graduate of Princeton university. Mr. Trowbridge entered the employ of the Pennsylvania in 1925, as a rodman on the Pittsburgh division. He became a division engineer in 1933, and on September 1, 1940, after serving in that capacity on various divisions, he was transferred to Philadelphia, on special duty in the office of the chief of freight transportation, in which position he remained until his recent appointment.

C. F. Trowbridge

G. L. Moody, roadmaster of the Missouri-Kansas-Texas at Muskogee, Okla., has been promoted to district engineer of the South Texas district, with headquarters at Smithville, Tex., succeeding **W. C. Pruett,** whose promotion to superintendent of the Northwestern district, is reported elsewhere in these columns. **Fred Hunter** has been appointed district engineer, Northern district, with headquarters at Parsons, Kan.

Allen M. Knowles, whose promotion to engineer of structures of the Erie, with headquarters at Cleveland, Ohio, was reported in the *Railway Age* of February 6, was born at Corinna, Me., on June 22, 1879, and graduated from the University of Maine in 1904. He entered railroad service in June, 1905, as a structural draftsman of the Erie, with headquarters at New York, and in November, 1906, was promoted to assistant engineer, structural department, with the same headquarters. In 1915 Mr. Knowles was advanced to assistant engineer, bridges and buildings, and five years later became assistant engineer of structures, holding that position until his new appointment, effective February 1. Mr. Knowles moved his headquarters to Cleveland in 1931 when the Erie transferred its executive offices to that city.

Allen M. Knowles

P. X. Geary, whose appointment to engineer, maintenance of way, on the Southern division of the Pennsylvania, was announced in the *Railway Age* of February 6, was born at Wilkinsburg, Pa., on March 29, 1891. Mr. Geary was graduated from the University of Pittsburgh in 1913, and immediately thereafter he entered the service of the Pennsylvania as a rodman on the Pittsburgh division at Pittsburgh, Pa. In 1917 he was promoted to assistant supervisor of track at Tyrone, Pa., and subsequently held this position at points on the Buffalo, Cleveland and Pittsburgh divisions, until 1927, when he was promoted to supervisor on the Allegheny division at DuBois, Pa. In that same year he became master carpenter on the Renovo division at Erie, Pa., and in 1928 returned to the track department as supervisor on the New York division, with headquarters at New York. In 1933 he was promoted to assistant division engineer on the Ft. Wayne division, with headquarters at Ft. Wayne, Ind., and in 1937 he was promoted to division engineer on the Delmarva division at Cape Charles, Va., being transferred to the Philadelphia division with headquarters at Harrisburg, Pa., in April, 1939, the position he was holding at the time of his recent promotion.

P. X. Geary

Samuel Reed Hursh, whose appointment as assistant chief engineer—maintenance, of the Pennsylvania system, with headquarters at Philadelphia, Pa., was announced in the *Railway Age* of February 6, was born on March 20, 1894, at Mifflinburg, Union County, Pa., and was graduated from Pennsylvania State College, receiving a B.S. degree in civil engineering in 1916. Mr. Hursh entered railroad service on June 24, 1916, as chainman on the Philadelphia Terminal division of the Pennsylvania and served as rodman on the Tyrone division from January to May, 1917, when he was furloughed for military service. From January to June, 1919, Mr. Hursh was assistant supervisor of the Maryland division of the Pennsylvania, and subsequently was transferred successively to the general office at Philadelphia, the Delaware division, the Williamsport division, the Baltimore division, and the Maryland division. On October 9, 1926, he became supervisor of the West Jersey & Seashore (now Pennsylvania-Reading Seashore Lines) and on October 1, 1927, he was appointed supervisor of the Philadelphia Terminal division of the Pennsylvania. On November 10, 1928, he became division engineer of the Atlantic division and the West Jersey & Seashore, being transferred to the Philadelphia Terminal

Samuel Reed Hursh

News Department continued on next left-hand page

Buy War Bonds —and JOIN THE MINUTE MEN

★ ★ ★ ★

The Unprecedented Accomplishment

"Editorial in the January 10, 1943 issue of the New York Herald Tribune"

Railroads in the War

The President's reference, in his annual message, to the "miracle" of American war production in 1942 was no exaggeration. Nothing of its kind in history compares with the marvel of engineering genius which converted this nation's civilian industries, within the space of a few months, into the most gigantic and efficient war arsenal the world has ever known.

We should like, however, to add a footnote, as it were, to the President's observations on this subject—a footnote about another "miracle" which has made it possible to translate this vast achievement in production into actual striking power. We refer to the ***unprecedented accomplishments of the American transportation system,*** operating under private ownership and management and co-ordinated under the Office of Defense Transportation.

In 1942 the railroads of the country hauled 630 billion ton-miles of freight traffic and 50 billion miles of passenger traffic—both totals unprecedented in their history. As the new year opens they face the herculean task of moving somewhere between 700 and 725 billion ton-miles of freight and probably a somewhat larger number of passengers than in 1942. Some idea of what these figures mean may be obtained from the fact that the estimated 1943 freight volume would be approximately double that handled by the carriers at the peak of World War I, in 1918.

This expansion in the volume of business handled would alone have thrown a heavy burden on the railroads; but their problems have been enormously complicated by changes in the nation's economy as a result of the war and the disruption of normal shipping routes. One of the most conspicuous examples of this, of course, was the forced curtailment of Panama Canal and coastwise shipping resulting from the German U-boat campaign.

The importance of the efficient performance of the American railroads in the face of unprecedented wartime problems is accentuated when it is contrasted with the transportation situation in Germany. Hitler, according to Allan A. Michie, in a recent article in "The Reader's Digest," made the gigantic miscalculation, before the war, of neglecting the railroads on the assumption that gasoline engines and super highways would take their place. The result was that his railroads were not as well equipped in 1938 as they were in 1913, and hence today, as in 1918, constitute "the Achilles' heel of the German war machine." Some observers, such as Mr. Michie, are of the opinion that another long Russian winter, added to increasing damage from R. A. F. raids, might cause the whole German transportation system to "buckle." This may or may not come to pass. There can be no question, however, that the contrast between the transportation performance of this country, on the one hand, and of the German Reich, on the other, while it may not decide the outcome of the war, may well prove a tremendous influence in determining the war's duration.

Schaefer EQUIPMENT COMPANY

KOPPERS BUILDING • PITTSBURGH, PA.

LOOP, "U" AND STIRRUP TYPE BRAKE BEAM HANGERS... TRUCK, CYLINDER AND FLOATING LEVERS
TRUCK LEVER CONNECTIONS... BRAKE ROD JAWS... WEAR PLATES... BRAKE SHOE KEYS

division on December 16, 1929, and to the Pittsburgh division on July 1, 1933. On October 1, 1934, Mr. Hursh was appointed superintendent of the Wilkes-Barre division, being transferred to the Maryland division on April 1, 1935. On July 16, 1938, he became engineer, maintenance of way, of the Eastern Pennsylvania division, and he was appointed acting chief engineer, maintenance of way, of the Eastern region in October, 1940. Mr. Hursh became chief engineer, maintenance of way, of the Eastern region at Philadelphia in June, 1941, the position he held until his recent appointment.

In the *Railway Age* of January 16, the name of **William N. Young,** assistant to the chief engineer of the Baltimore & Ohio, was incorrectly given as William M. Young.

D. W. Fry, senior assistant engineer of the Baltimore & Ohio, has been appointed principal assistant engineer, with headquarters as before at Baltimore, Md. **R. E. Kennedy,** assistant to chief engineer, has been appointed office engineer, with headquarters as before at Baltimore, succeeding **J. H. Milburn,** who has retired.

Roger W. Speidel, supervisor of track of the Philadelphia division of the Pennsylvania, has been promoted to division engineer of the Indianapolis division, with headquarters at Indianapolis, Ind. He succeeds **Lewis G. Walker,** who has been transferred to the Columbus division, with headquarters at Columbus, Ohio. **Morton S. Smith, Jr.,** division engineer of the Columbus division, has been transferred to the Long Island Railroad (a subsidiary of the Pennsylvania), with headquarters at Jamaica, N. Y.

Frank A. Howard, whose retirement as engineer of structures of the Erie, with headquarters at Cleveland, Ohio, was reported in the *Railway Age* of February 6, was born at Brockton, Mass., on December 17, 1872, and entered railroad service in 1895 as a clerk of the operating department of the New York, New Haven & Hartford. In June, 1896, he became a rodman of the Erie and in June, 1899, he was promoted to assistant engineer, bridge department, with headquarters in New York. In October, 1906, Mr. Howard was advanced to assistant engineer, bridges and buildings, with the same headquarters, and six years later he was promoted to engineer, bridges and buildings. In 1920 his title was changed to engineer of structures, the position he held at the time of his retirement.

Glenn A. Williams, division engineer of the Chicago terminal division of the Pennsylvania, has been transferred to the Philadelphia division, with headquarters at Harrisburg, Pa., succeeding **P. X. Geary,** whose appointment as engineer, maintenance of way, Southern division, was reported in the *Railway Age* of February 6. John F. Swenson, division engineer of the Logansport division, has been transferred to the Chicago terminal division, succeeding Mr. Williams, and **E. E. Kinzel,** division engineer of the Cleveland division replaces Mr. Swenson. **Richard W. Grigg,** division engineer of the St. Louis division, with headquarters at Terre Haute, Ind., has been transferred to Cleveland, Ohio, succeeding Mr. Kinzel, and **K. J. Silvey,** division engineer of the Monongahela division, with headquarters at Pittsburgh, Pa., has been transferred to the St. Louis division, succeeding Mr. Grigg.

MECHANICAL

S. O. Lewis has been appointed road foreman of engines of the Baltimore & Ohio, with headquarters at Brunswick, Md., succeeding **G. B. Ecker.**

F. J. Herter has been appointed mechanical engineer of the Pere Marquette, with headquarters at Grand Rapids, Mich., succeeding **William Jacob** whose death on January 6 was reported in the *Railway Age* of January 23.

J. E. Brown, assistant superintendent of motive power of the St. Louis Southwestern, has been promoted to superintendent of motive power, with headquarters as before at Pine Bluff, Ark. He succeeds **W. J. Miller,** who died at Pine Bluff on January 27.

C. F. Weaver, superintendent of car shop of the Central region of the Canadian National at London, Ont., has been appointed assistant general superintendent of car equipment, with headquarters at Toronto, Ont., succeeding **George E. McCoy,** who was promoted to assistant chief of car equipment at Montreal, Que. (A photograph of Mr. McCoy and a biographical sketch of his railway career appear in the *Railway Age* for January 30.) **W. G. Palmer** has been appointed superintendent of car shop at London, succeeding Mr. Weaver.

SPECIAL

Thad W. Hamilton, superintendent of police, Western region, of the Pennsylvania, with headquarters at Chicago, has been transferred to the Eastern region, with headquarters at Philadelphia, Pa.,

Dr. R. J. Bennett, Jr., has been appointed chief surgeon of the Elgin, Joliet & Eastern, with headquarters at Chicago, Ill., succeeding **Dr. P. H. Kreuscher,** who has resigned to devote his entire time to his private affairs.

H. E. Johnson, member Rules committee of the Chesapeake & Ohio, has been appointed chairman of the Rules committee, with headquarters as before at Richmond, Va., succeeding **P. P. Crawford,** who has retired.

Richard Joseph, a member of the public relations department of the New York, New Haven & Hartford, who edits "The Rider's Digest," the pocket-sized magazine published monthly to keep passengers informed about that road's activities, and who is also an associate editor of "Along the Line," the New York, New Haven & Hartford employees' magazine, with headquarters at Boston, Mass., has enlisted as a volunteer officers candidate in one of the combat branches of the United States Army.

OBITUARY

John C. Willis, division freight agent of the Louisville & Nashville, with headquarters at Birmingham, Ala., died on February 5, following a sudden illness.

Jay Carl Williams, vice president and treasurer of the Spokane International, died recently at Spokane, Wash., following a short illness.

William J. Miller, superintendent of motive power of the St. Louis Southwestern, with headquarters at Pine Bluff, Ark., died at that city on January 27. Mr. Miller was born at Philadelphia, Pa., on August 27, 1867, and entered railroad service in 1881 as a machinist apprentice of the Hannibal & St. Joseph (now a part of the Chicago, Burlington & Quincy), and in March, 1886, became a machinist of the Missouri Pacific. He held similar positions on the Missouri-Kansas-Texas, the Atchison, Topeka & Santa Fe and the Wabash until, in 1897, he was appointed master mechanic of the St. Louis Southwestern at Pine Bluff. In 1914, Mr. Miller was promoted to the position he held at the time of his death.

Walter Kidde, trustee of the New York, Susquehanna & Western at New York, died of a heart attack on February 9, at his home at Montclair, N. J. At the time of his death, Mr. Kidde was president of Walter Kidde & Co., Inc., manufacturers of fire extinguishers and, for the time being, of various war materials. Born on March 7, 1877, at Hoboken, N. J., Mr. Kidde was graduated from Stevens Institute of Technology, receiving an M.E. degree in 1897 and an E.D. degree in 1935. He started a construction firm soon after graduation in 1897, and established his fire-extinguisher plant at Bloomfield, N. J., in 1900. In 1908, as chairman of the Water Commission, Northern Section, State of New Jersey, he aided in the inauguration of the North Jersey water supply system. He held numerous other posts of leadership in civic enterprise and had been trustee of the New York, Susquehanna & Western since 1937.

A. C. Shields, former president and general manager of the Pittsburg & Shawmut, with headquarters at Kittanning, Pa., and at one time vice-president and general manager of the Denver & Rio Grande Western, died on January 18. Mr. Shields was born at Eldon, Iowa, and attended Iowa State College, Ames, Iowa. He entered railroad service with the Chicago, Rock Island & Pacific and served in various positions in the engineering and operating departments until 1923. He then served until 1930 as engineer maintenance of way, assistant general manager and general manager of the D. & R. G. W. From 1930 to 1937 Mr. Shields was vice-president and general manager of the D. & R. G. W. at Denver, Colo. He was appointed vice-president and general manager of the Pittsburgh & Shawmut in April, 1940. On September 25, 1940, he was elected president and general manager, which position he held until September, 1942.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1942

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1942	Net railway operating income 1941
Akron, Canton & Youngstown	Dec.	171	$300,763	$152	$321,510	$52,136	$31,032	$16,834	$89,702	$202,101	62.9	$119,409	$84,060	$68,612	$35,848
	12 mos.	171	3,316,086	1,065	3,473,417	636,892	354,221	184,075	988,206	2,305,707	66.4	1,167,710	814,612	644,810	657,168
Alton	Dec.	959	2,179,228	657,390	3,146,265	282,699	415,782	52,268	1,040,140	1,900,372	60.4	1,245,893	1,501,611	1,192,726	259,178
	12 mos.	959	22,841,754	5,629,895	31,712,090	3,152,300	4,175,066	602,075	10,626,167	19,755,872	62.3	11,956,218	6,073,276	3,654,310	1,992,757
Atchison, Topeka & Santa Fe System	Dec.	13,137	25,988,411	6,652,278	35,944,542	2,422,757	4,760,556	560,312	10,074,126	18,306,840	50.9	17,637,702	9,741,562	9,334,575	4,223,695
	12 mos.	13,296	284,229,861	52,987,080	361,148,930	35,326,414	53,915,710	5,985,570	97,700,115	198,327,167	54.9	162,821,763	86,555,480	83,547,609	40,546,790
Atlanta & West Point	Dec.	93	226,217	160,913	423,791	35,992	37,380	9,347	126,255	225,920	53.3	197,871	59,616	35,164	—20,033
	12 mos.	93	2,505,099	1,102,865	4,000,671	376,455	420,704	111,627	1,240,432	2,320,956	58.0	1,679,715	837,939	612,244	202,137
Western of Alabama	Dec.	133	237,146	168,738	442,030	34,330	48,053	9,505	113,056	219,315	49.6	222,715	20,510	20,762	2,334
	12 mos.	133	2,863,392	1,138,710	4,374,645	378,090	518,963	108,994	1,257,245	2,420,534	55.3	1,954,111	867,260	805,357	299,760
Atlanta, Birmingham & Coast	Dec.	639	521,500	47,655	592,595	267,172	161,086	27,455	235,161	711,268	120.0	—118,673	—43,225	—84,196	—8,145
	12 mos.	639	5,310,065	430,064	6,035,089	977,533	902,965	319,353	2,318,581	4,737,770	78.5	1,297,319	701,993	305,611	213,791
Atlantic Coast Line	Dec.	4,991	8,942,133	3,010,112	12,730,132	857,253	1,378,853	181,151	3,204,761	5,974,052	46.9	6,756,080	2,411,080	2,054,404	733,068
	12 mos.	5,004	82,310,279	25,822,233	115,108,820	8,085,008	16,527,575	2,080,529	32,699,721	62,947,631	54.7	52,161,189	24,261,189	21,195,567	11,080,953
Charleston & Western Carolina	Dec.	343	314,664	18,304	339,150	35,444	54,042	9,671	99,733	205,040	60.5	134,110	69,110	72,881	84,004
	12 mos.	343	3,699,461	145,363	3,922,834	395,557	559,499	119,511	1,177,680	2,326,673	59.3	1,596,161	881,161	873,595	814,606
Baltimore & Ohio	Dec.	6,204	21,826,795	2,350,398	26,173,203	2,441,461	5,340,347	476,274	9,199,499	18,425,018	70.4	7,748,185	15,496,235	14,969,518	1,912,010
	12 mos.	6,250	264,566,740	26,795,735	306,254,194	27,921,773	62,590,467	5,509,728	98,045,159	204,241,199	66.7	102,012,995	76,958,982	69,558,718	46,297,125
Staten Island Rapid Transit	Dec.	24	157,772	98,728	265,837	18,873	30,525	1,178	94,874	162,503	61.1	103,334	60,498	54,430	—23,806
	12 mos.	24	1,524,405	1,045,348	2,684,833	210,164	309,126	14,170	1,085,611	1,800,381	67.1	884,452	534,373	417,611	—190,269
Bangor & Aroostook	Dec.	602	631,133	75,139	734,510	27,670	106,883	6,257	184,408	359,110	48.9	375,400	233,728	254,439	165,163
	12 mos.	602	5,826,837	619,530	6,769,786	1,103,127	1,150,926	72,631	1,806,288	4,468,469	66.0	2,301,317	1,262,936	1,516,473	1,357,316
Bessemer & Lake Erie	Dec.	214	1,022,378	2,170	1,041,530	186,228	1,443,906	12,565	287,268	2,165,568	207.9	—1,124,038	—3,553	174,784	—209,394
	12 mos.	214	21,287,732	12,421	21,473,388	1,967,748	7,604,141	158,344	3,654,866	14,039,272	65.4	7,434,116	2,490,454	3,635,912	7,137,888
Boston & Maine	Dec.	1,825	4,539,638	1,444,815	6,662,838	572,156	892,342	71,940	2,427,869	4,174,826	62.7	2,488,012	2,813,156	2,543,741	1,468,195
	12 mos.	1,858	55,736,633	14,967,404	77,646,670	9,178,075	11,054,691	860,378	25,891,788	49,350,039	63.6	28,296,631	19,226,855	15,821,788	10,492,598
Burlington, Rock Island	Dec.	228	113,350	53,856	179,998	22,586	23,448	3,036	61,009	122,954	68.3	57,044	46,200	39,122	—26,088
	12 mos.	236	1,209,186	479,682	1,814,295	239,925	240,495	30,666	716,011	1,370,957	75.6	443,338	320,494	198,121	—61,536
Cambria & Indiana	Dec.	35	169,767	.....	169,850	14,677	67,365	768	30,539	123,422	72.66	46,428	—66,518	10,576	60,891
	12 mos.	37	2,091,570	.....	2,092,443	134,079	727,539	6,002	232,903	1,181,163	56.45	911,280	—190,130	703,485	857,299
Canadian Pacific Lines in Maine	Dec.	234	339,337	40,644	403,089	71,911	54,540	4,496	136,712	275,214	68.3	127,875	102,460	75,519	176,330
	12 mos.	234	4,243,216	654,182	5,133,375	672,920	653,819	77,877	1,534,417	3,022,828	58.9	2,110,547	1,881,952	1,577,310	697,790
Canadian Pacific Lines in Vermont	Dec.	90	75,493	8,167	101,415	15,882	27,114	1,855	89,504	137,773	135.8	—36,358	—45,918	—72,471	—47,883
	12 mos.	90	1,104,716	149,117	1,415,503	312,391	319,968	28,308	981,119	1,684,093	119.0	—268,590	—367,921	—671,124	—486,216
Central of Georgia	Dec.	1,815	2,216,337	462,225	2,918,740	216,209	339,748	70,978	1,008,750	1,760,475	60.3	1,158,265	820,819	789,433	517,548
	12 mos.	1,815	22,660,298	4,695,808	29,503,084	2,837,901	4,335,973	746,884	9,819,845	18,969,814	72.8	10,533,270	8,024,974	7,711,979	4,385,060
Central of New Jersey	Dec.	658	4,025,762	584,202	4,897,009	402,906	982,736	45,092	1,939,657	3,522,011	71.9	1,374,998	1,117,599	928,428	383,913
	12 mos.	660	47,578,783	6,660,520	57,446,744	5,780,544	9,865,477	560,146	21,740,628	39,310,542	68.4	18,136,202	12,694,645	9,321,852	5,088,050
Central Vermont	Dec.	422	548,201	100,592	722,404	101,066	93,249	Cr. 1,040	271,727	489,821	67.8	232,583	201,172	173,113	81,730
	12 mos.	422	6,910,036	792,592	8,235,979	1,066,853	1,171,450	120,561	3,197,598	5,828,793	70.8	2,407,186	2,024,488	1,477,894	1,408,388
Chesapeake & Ohio	Dec.	3,092	13,049,334	1,630,612	15,168,434	932,961	2,725,137	252,436	3,804,890	8,213,331	54.2	6,955,103	5,589,349	5,954,245	6,286,479
	12 mos.	3,115	163,970,200	11,493,584	181,809,761	15,850,250	30,547,841	2,680,547	41,728,214	95,415,056	52.5	86,394,705	36,396,354	39,643,584	51,559,186
Chicago & Eastern Illinois	Dec.	912	1,681,148	533,416	2,440,307	172,433	331,751	61,967	770,202	1,450,068	59.4	990,239	637,039	450,121	185,061
	12 mos.	920	17,649,208	4,128,391	23,964,174	2,342,796	3,875,524	716,787	7,940,258	15,864,500	66.2	8,099,674	5,466,474	3,787,932	1,933,542
Chicago & Illinois Midland	Dec.	131	505,218	1,616	528,703	23,120	80,167	1,035	131,374	260,100	49.2	268,603	94,786	98,703	100,103
	12 mos.	131	5,822,306	11,024	6,106,949	629,426	942,897	235,777	1,485,096	3,561,292	58.3	2,545,657	1,066,165	997,706	1,080,904
Chicago & North Western	Dec.	8,100	8,724,867	2,303,567	12,437,262	1,457,214	2,161,805	180,018	3,941,630	8,162,323	65.6	4,274,939	1,888,459	1,771,301	738,000
	12 mos.	8,214	105,597,684	20,382,903	138,395,019	18,270,298	23,758,695	2,339,464	45,213,046	94,341,803	68.2	44,053,216	26,913,598	24,939,999	16,793,076
Chicago, Burlington & Quincy	Dec.	9,040	12,594,121	2,142,072	16,283,248	2,696,102	2,678,875	247,709	4,349,935	10,458,256	64.2	5,824,992	5,080,106	4,623,244	1,461,677
	12 mos.	9,078	131,770,823	19,100,283	165,289,325	21,025,235	24,106,233	3,009,618	46,267,051	99,415,696	60.1	65,873,629	39,680,633	37,173,683	19,135,005
Chicago Great Western	Dec.	1,502	1,975,060	220,859	2,384,782	264,976	253,729	65,273	764,710	1,415,161	59.3	969,621	747,612	599,579	192,671
	12 mos.	1,502	22,123,701	1,634,784	25,465,654	2,997,678	3,234,540	738,841	8,586,283	16,310,063	64.0	9,155,591	5,871,369	3,702,544	2,918,678
Chicago, Indianapolis & Louisville	Dec.	541	892,848	91,055	1,063,354	103,830	176,115	30,489	304,817	652,550	61.4	410,804	147,208	74,050	227,620
	12 mos.	548	10,005,799	827,801	11,657,722	1,248,325	2,033,684	357,003	3,662,057	7,735,780	66.4	3,921,942	3,132,586	2,398,656	2,224,062

Table continued on next left-hand page

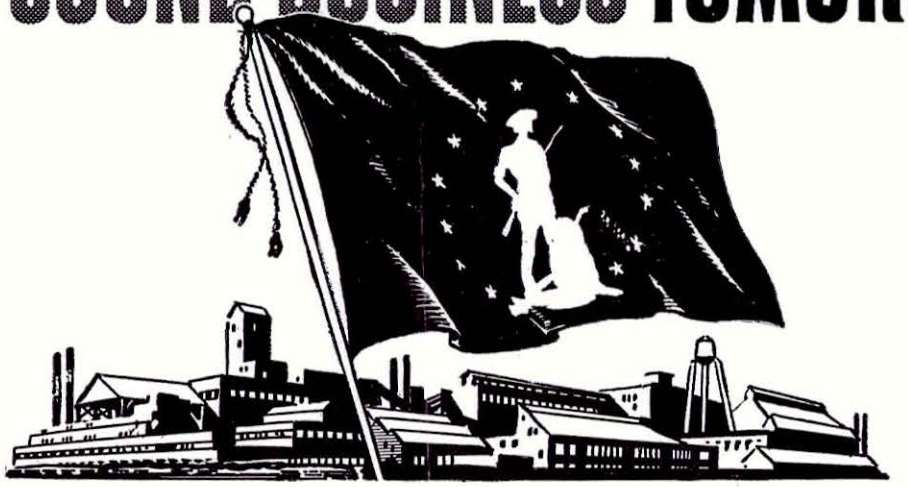
REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1942—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1942	Net railway operating income 1941
Chicago, Milwaukee, St. Paul & Pacific	Dec.	10,820	$13,140,953	$2,254,599	$16,904,753	$1,852,416	$2,339,181	$245,568	$5,147,553	$10,152,112	60.1	$6,752,641	$3,883,641	$3,578,786	$2,062,946
	12 mos.	10,821	146,466,550	17,772,714	179,867,280	25,559,185	26,065,126	2,822,846	55,400,318	115,963,264	64.5	63,904,016	38,203,016	34,504,654	28,181,975
Chicago, Rock Island & Pacific	Dec.	7,773	9,530,534	3,191,345	13,833,545	2,247,075	1,968,238	307,441	3,877,198	8,863,222	64.1	4,970,323	3,191,350	2,860,827	1,383,989
	12 mos.	7,901	102,768,516	24,724,423	137,067,138	14,663,220	19,711,580	3,517,132	41,367,119	84,589,244	61.7	52,477,894	41,012,445	36,557,111	17,616,382
Chicago, St. Paul, Minneapolis & Omaha	Dec.	1,629	1,808,859	328,230	2,307,002	223,779	349,476	46,557	862,111	1,552,355	67.3	754,647	630,752	217,989	246,373
	12 mos.	1,629	19,453,502	2,692,345	23,730,124	2,921,096	3,819,867	498,885	9,582,128	17,658,059	74.4	6,072,065	4,554,162	3,181,322	1,703,732
Clinchfield Railroad	Dec.	308	1,058,131	11,683	1,081,381	47,007	139,878	21,532	211,934	441,327	40.8	640,054	476,309	490,009	463,066
	12 mos.	308	12,211,513	87,422	12,384,278	665,992	1,638,826	257,612	2,396,800	5,183,636	41.9	7,200,642	5,703,081	5,832,619	5,390,038
Colorado & Southern	Dec.	748	752,036	261,226	1,122,867	213,942	186,159	15,820	335,840	813,628	72.5	309,239	264,052	249,191	5,709
	12 mos.	754	7,951,587	1,921,919	10,746,777	1,165,072	1,736,289	180,026	3,472,530	7,012,195	65.2	3,734,582	3,023,533	2,729,605	1,043,185
Fort Worth & Denver City	Dec.	804	618,225	286,620	1,058,445	145,801	144,526	24,448	281,884	651,756	61.6	406,689	340,370	306,173	292,916
	12 mos.	804	6,940,855	2,615,960	10,937,441	966,593	1,312,708	267,149	2,915,096	6,007,533	54.9	4,929,908	4,127,197	3,637,525	1,228,082
Colorado & Wyoming	Dec.	42	107,757	.....	165,210	14,889	15,791	957	55,781	92,092	55.7	73,118	24,661	23,633	27,758
	12 mos.	42	1,188,676	.....	1,834,823	197,596	156,396	10,692	620,755	1,039,689	56.6	795,134	284,344	276,738	416,979
Columbus & Greenville	Dec.	168	132,466	10,424	156,310	23,806	14,632	4,699	46,106	126,155	80.7	30,155	—41,445	—43,168	—21,682
	12 mos.	168	1,369,779	57,014	1,528,676	280,175	228,125	56,993	499,902	1,233,644	80.7	295,032	56,466	55,590	117,586
Delaware & Hudson	Dec.	848	3,538,066	168,657	3,819,957	407,342	868,134	46,750	1,334,202	2,762,963	72.3	1,056,994	1,425,278	1,397,103	665,978
	12 mos.	849	42,827,634	1,651,256	45,642,213	4,543,325	9,043,686	538,433	14,531,299	29,926,028	65.6	15,716,185	11,076,473	10,423,919	8,497,736
Delaware, Lackawanna & Western	Dec.	984	4,856,199	892,384	6,373,311	566,826	915,813	107,239	2,368,915	4,175,057	65.5	2,198,254	1,257,512	1,239,469	838,414
	12 mos.	984	56,484,380	9,223,476	72,544,985	7,072,666	10,890,161	1,295,161	27,189,695	48,464,634	66.8	24,080,351	12,045,409	11,648,816	10,125,797
Denver & Rio Grande Western	Dec.	2,405	4,663,766	703,292	5,607,920	353,990	852,205	97,432	1,617,350	3,093,016	55.2	2,514,904	1,223,946	1,009,151	783,998
	12 mos.	2,416	46,950,677	5,205,085	54,475,496	3,945,748	8,939,058	1,082,160	15,620,065	31,260,694	57.4	23,214,802	18,228,986	17,229,206	4,517,079
Denver & Salt Lake	Dec.	232	268,562	9,311	292,717	19,128	50,741	2,653	96,338	174,402	59.6	118,315	75,869	128,975	116,625
	12 mos.	232	2,676,789	73,442	2,880,759	345,148	550,728	31,154	915,580	1,959,407	68.0	921,352	583,044	1,199,347	915,334
Detroit & Mackinac	Dec.	242	87,197	9,399	111,015	10,504	16,434	674	33,636	64,429	58.0	46,586	39,678	35,384	30,398
	12 mos.	242	1,003,887	56,959	1,189,479	171,336	163,682	8,825	345,188	728,315	61.2	461,164	407,902	341,918	105,935
Detroit & Toledo Shore Line	Dec.	50	380,391	.....	381,233	26,453	24,004	9,379	92,266	160,287	42.0	220,946	93,666	37,181	49,323
	12 mos.	50	4,151,753	.....	4,164,644	374,330	304,681	109,447	1,071,886	1,956,570	47.0	2,208,074	1,352,568	731,656	842,353
Detroit, Toledo & Ironton	Dec.	464	719,907	1,209	775,397	71,996	115,390	11,520	181,469	406,147	52.4	369,250	267,901	269,290	351,582
	12 mos.	465	7,901,069	6,979	8,368,864	911,506	1,343,834	164,047	2,053,266	4,743,962	56.7	3,624,902	2,194,303	2,158,996	3,019,404
Duluth, Missabe & Iron Range	Dec.	545	379,115	5,520	456,047	432,849	578,885	6,488	426,952	1,770,034	388.1	—1,313,987	1,052,603	1,083,173	—1,639,821
	12 mos.	544	37,717,910	31,434	43,880,824	3,346,041	4,368,112	53,828	7,909,549	16,403,349	37.4	27,477,475	9,149,156	9,174,633	14,311,352
Duluth, Winnipeg & Pacific	Dec.	175	184,673	4,199	196,557	23,097	23,363	645	72,797	123,627	62.9	72,930	59,335	43,810	8,478
	12 mos.	175	2,025,373	20,999	2,095,757	389,262	298,400	22,838	786,150	1,538,829	73.4	556,928	395,571	170,943	32,423
Elgin, Joliet & Eastern	Dec.	392	2,402,241	1	2,772,899	116,624	612,597	17,309	1,061,745	1,980,789	71.4	792,110	1,140,567	1,036,058	211,325
	12 mos.	392	29,680,864	186	33,716,298	2,296,237	7,327,053	197,810	11,239,639	21,784,544	64.6	11,931,754	4,989,180	3,681,119	5,541,975
Erie	Dec.	2,242	9,764,941	696,980	11,146,473	1,039,570	1,829,155	212,639	3,872,714	7,344,319	65.9	3,802,154	2,035,468	1,701,288	869,332
	12 mos.	2,248	117,902,303	7,438,176	133,353,572	12,514,817	21,677,316	2,356,830	44,064,320	84,642,469	63.5	48,711,103	29,205,632	24,372,832	20,931,583
Florida East Coast	Dec.	685	1,480,886	938,970	2,663,943	198,068	217,973	39,539	603,467	1,162,310	43.6	1,501,633	1,777,825	1,707,493	285,633
	12 mos	685	12,035,718	7,143,841	20,838,086	2,084,304	2,377,874	406,197	5,605,371	11,481,207	55.1	9,356,879	8,371,503	7,873,959	1,580,527
Georgia Railroad	Dec.	329	688,217	156,151	896,158	74,815	83,417	20,860	255,602	455,379	50.8	440,779	410,173	417,813	135,175
	12 mos.	329	7,276,700	1,377,781	9,122,568	749,149	943,332	254,843	2,878,987	5,025,972	55.1	4,096,596	3,812,943	3,678,644	1,437,454
Georgia & Florida	Dec.	408	127,329	5,642	138,520	28,609	19,222	9,711	49,149	115,155	83.1	23,365	21,703	17,074	38,258
	12 mos.	408	1,656,569	50,529	1,769,063	429,034	240,937	18,169	585,319	1,452,266	82.1	316,797	215,011	128,104	190,836
Grand Trunk Western	Dec.	1,026	2,357,189	255,092	2,832,446	249,204	455,424	Cr. 4,167	1,291,667	2,091,258	73.8	741,188	537,727	539,658	358,496
	12 mos.	1,026	26,947,189	1,881,092	30,738,446	3,514,224	5,265,010	419,733	11,881,358	22,085,722	71.9	8,652,724	6,596,662	5,948,489	6,154,930
Canadian Nat'l Lines in New England	Dec.	172	78,088	7,546	109,229	31,614	20,690	2,500	86,287	153,261	140.3	—44,032	—83,431	—112,517	—43,042
	12 mos.	172	1,780,288	69,746	2,028,629	898,863	289,701	30,791	1,050,713	2,407,116	118.9	—378,487	—621,606	—1,218,060	—502,876
Great Northern	Dec.	8,125	11,806,505	1,365,106	14,420,339	1,408,071	2,372,322	221,400	3,810,959	8,173,281	56.7	6,247,058	3,730,914	3,614,710	1,284,614
	12 mos.	8,095	143,264,055	9,182,732	165,206,031	18,801,376	26,300,208	2,509,275	41,672,967	93,318,476	56.5	71,887,555	41,160,215	39,445,076	28,001,535
Green Bay & Western	Dec.	234	192,075	758	201,416	112,264	14,861	5,659	49,290	188,450	93.6	12,966	—33,810	—17,479	8,474
	12 mos.	234	2,220,886	4,796	2,296,138	575,208	264,712	96,987	661,381	1,669,146	72.6	626,992	334,894	266,615	261,227
Gulf & Ship Island	Dec.	259	170,097	53,002	245,385	134,308	41,328	2,940	89,245	278,214	113.4	—32,829	—50,148	—69,241	—44,372
	12 mos.	259	1,952,351	362,529	2,516,981	480,465	317,864	35,890	930,019	1,855,561	73.7	661,420	453,179	262,705	—38,541

Table continued on third right-hand page

FOR VICTORY TODAY AND SOUND BUSINESS TOMORROW



Get This Flag Flying Now!

This War Savings Flag which flies today over companies, large and small, all across the land means *business.* It means, first, that 10% of the company's gross pay roll is being invested in War Bonds by the workers voluntarily.

It also means that the employees of all these companies are doing their part for Victory . . . by helping to buy the guns, tanks, and planes that America and her allies *must* have to win.

It means that billions of dollars are being diverted from "bidding" for the constantly shrinking stock of goods available, thus putting a brake on inflation. And it means that billions of dollars will be held in readiness for post-war readjustment.

Think what 10% of the national income, saved in War Bonds now, month after month, can buy when the war ends!

For Victory today . . . and prosperity *tomorrow,* keep the War Bond Pay-roll Savings Plan rolling in *your* firm. Get that flag flying now! Your State War Savings Staff Administrator will gladly explain how you may do so.

If your firm has not already installed the Payroll Savings Plan, *now is the time to do so.* For full details, plus samples of result-getting literature and promotional helps, write or wire: War Savings Staff, Section F, Treasury Department, 709 Twelfth Street NW., Washington, D. C.

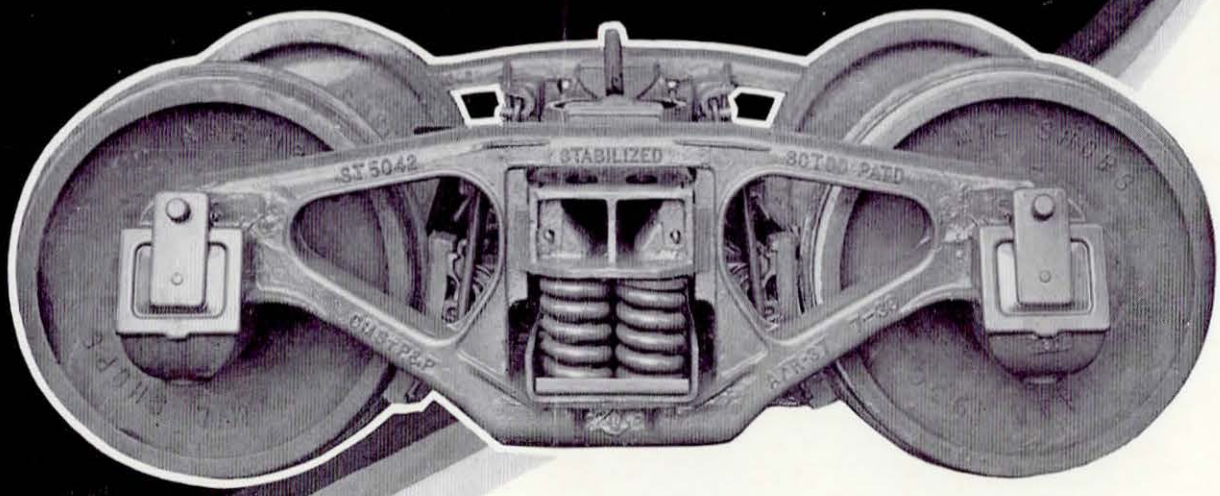
Save With

War Savings Bonds

This space is a contribution to America's all-out war program by

RAILWAY AGE

STOP
Car Sabotage



BARBER *STABILIZE*
YOUR TRUCKS

You can stop harmonic bouncing, spring breakage, bolster and column wear—all invisible and destructive car saboteurs—by simply Barber Stabilizing your trucks at trifling cost.

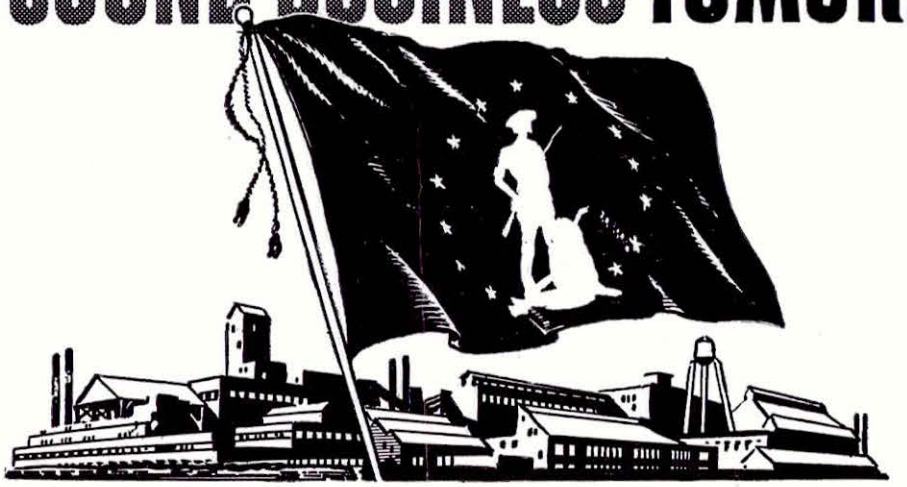
Barber Stabilized Parts are built into the bolsters, where they eliminate all looseness and produce sufficient friction to minimize harmonic spring bouncing, thus insuring to cars and lading a smooth, easy ride under all conditions of load and speed.

Over 58,000 Cars with Stabilized Parts Are Now in Service!

Specify Barber Stabilized Trucks
and Keep Shippers Satisfied

STANDARD CAR TRUCK COMPANY
332 So. Michigan Ave. Chicago, Ill.

FOR VICTORY TODAY AND SOUND BUSINESS TOMORROW



Get This Flag Flying Now!

This War Savings Flag which flies today over companies, large and small, all across the land means *business.* It means, first, that 10% of the company's gross pay roll is being invested in War Bonds by the workers voluntarily.

It also means that the employees of all these companies are doing their part for Victory . . . by helping to buy the guns, tanks, and planes that America and her allies *must* have to win.

It means that billions of dollars are being diverted from "bidding" for the constantly shrinking stock of goods available, thus putting a brake on inflation. And it means that billions of dollars will be held in readiness for post-war readjustment.

Think what 10% of the national income, saved in War Bonds now, month after month, can buy when the war ends!

For Victory today . . . and prosperity *tomorrow,* keep the War Bond Pay-roll Savings Plan rolling in *your* firm. Get that flag flying now. Your State War Savings Staff Administrator will gladly explain how you may do so.

If your firm has not already installed the Pay-roll Savings Plan, *now is the time to do so.* For full details, plus samples of result-getting literature and promotional helps, write or wire: War Savings Staff, Section F, Treasury Department, 709 Twelfth Street NW., Washington, D. C.

Save With

War Savings Bonds

This space is a contribution to America's all-out war program by

RAILWAY AGE

GM DIESEL FREIGHT LOCOMOTIVES
Solve Vital War Problems

GREAT NORTHERN 2700 Hp. Diesel Freight Locomotive No. 5600, operating between Great Falls and Butte, Montana (170 miles), and serving one of the world's greatest copper producing areas, has met every test — solved every problem — with typical super-performance, as evidenced by the following comparisons with steam locomotives previously used.

- Diesel has increased maximum tonnage more than 47 percent on 2.2 percent grade — running time reduced four hours in each direction.
- In 62 days of operation Diesel saved 20 round trips — 6800 train miles; also saved 36 helper trips — 2103 helper miles. Helper service was entirely eliminated on a 54-mile district and reduced 50 percent on a 10-mile district.
- GM Diesel efficiency is not affected by altitude or extreme temperatures.
- GM Diesel has eliminated smoke and gas hazards in tunnels and fire hazard along right of way.

WHY DID THE GREAT NORTHERN ADOPT GM DIESELS? The abnormal demand for copper, one of the most vital war materials, required either rebuilding the line to accommodate heavier steam power or adopting GM Diesels which had already demonstrated their ability to outperform steam without expensive changes in operating facilities. GM DIESEL LOCOMOTIVES positively reduce wear and tear on track and bridge structures. To even approach this Diesel performance with steam power would have required an expenditure of $350,000 to $500,000 for reducing grades, reinforcing bridges, enlarging tunnels and installing new turntable — an amount considerably more than the cost of the Diesel.

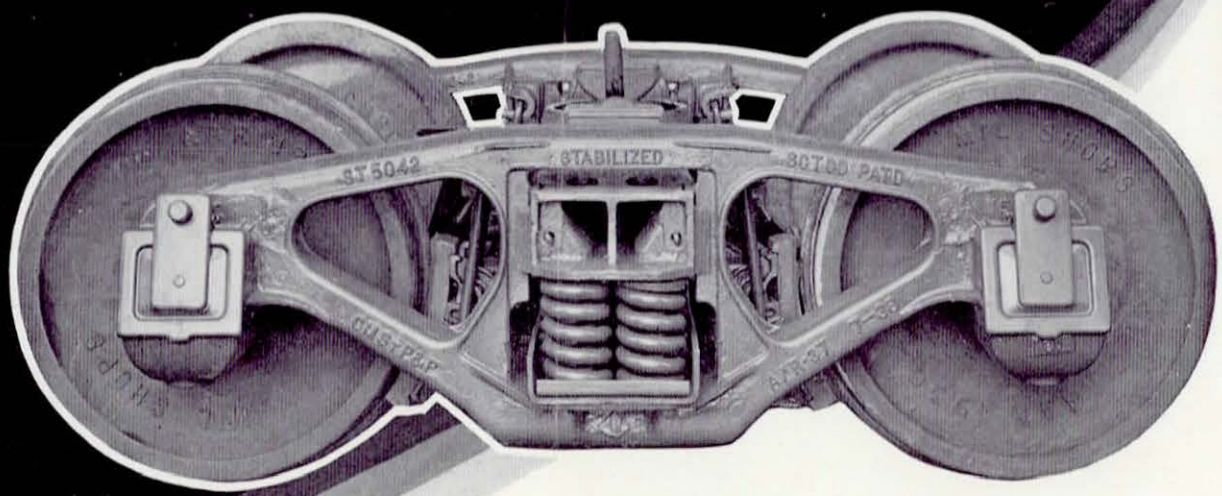
TRANSPORTATION IS VITAL FOR VICTORY

2700 Hp. Diesel Freight Locomotive operating between Great Falls and Butte, Montana, serving one of the world's greatest copper producing areas.

IVE DIVISION

LA GRANGE, ILLINOIS, U. S. A.

STOP
Car Sabotage



BARBER *STABILIZE*
YOUR TRUCKS

You can stop harmonic bouncing, spring breakage, bolster and column wear—all invisible and destructive car saboteurs—by simply Barber Stabilizing your trucks at trifling cost.

Barber Stabilized Parts are built into the bolsters, where they eliminate all looseness and produce sufficient friction to minimize harmonic spring bouncing, thus insuring to cars and lading a smooth, easy ride under all conditions of load and speed.

Over 58,000 Cars with Stabilized Parts Are Now in Service!

Specify Barber Stabilized Trucks
and Keep Shippers Satisfied

STANDARD CAR TRUCK COMPANY
332 So. Michigan Ave. Chicago, Ill.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1942—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: 1942	1941
Gulf, Mobile & Ohio	Dec.	1,969	$2,731,487	$168,744	$2,986,903	$508,042	$459,203	$99,146	$840,595	$2,021,297	67.7	$965,606	$840,306	$649,462	$134,912
	12 mos.	1,969	30,736,553	1,361,108	33,173,151	4,509,984	4,968,039	1,047,947	8,938,161	20,674,982	62.3	12,498,169	7,846,769	5,648,668	3,661,460
Illinois Central	Dec.	4,841	13,302,316	2,382,366	16,660,118	4,862,133	3,869,946	223,247	4,922,138	14,436,788	86.7	2,223,330	7,237,594	6,738,298	2,311,668
	12 mos.	4,906	147,278,439	19,941,145	177,370,948	25,161,844	35,624,806	2,612,553	51,851,151	120,878,847	68.2	56,492,101	34,986,928	30,385,730	21,101,522
Yazoo & Mississippi Valley	Dec.	1,525	3,135,117	381,744	3,679,769	1,009,043	352,950	37,204	924,908	2,412,862	65.6	1,266,907	—1,465,009	—1,563,029	645,369
	12 mos.	1,539	31,690,864	2,590,551	35,655,474	3,659,045	4,175,602	427,531	9,466,325	18,602,521	52.2	17,052,953	12,035,395	10,572,126	4,801,729
Illinois Central System	Dec.	6,366	16,437,433	2,764,110	20,339,887	5,871,176	4,222,896	260,451	5,847,046	16,849,650	82.8	3,490,237	5,765,282	5,183,291	2,976,858
	12 mos.	6,445	178,969,303	22,531,696	213,026,422	28,820,889	39,800,408	3,040,084	61,317,476	139,481,368	65.5	73,545,054	46,964,842	41,007,920	26,012,414
Illinois Terminal	Dec.	476	472,415	189,191	724,805	48,544	77,603	18,858	239,765	418,251	57.71	306,554	422,381	417,759	109,195
	12 mos.	476	6,555,349	1,488,040	8,876,302	698,744	976,717	226,258	2,661,581	4,890,498	55.10	3,985,804	2,317,613	2,068,328	1,554,573
Kansas City Southern	Dec.	880	2,732,125	343,793	3,316,716	1,205,661	573,404	68,852	881,176	2,851,656	86.0	465,060	—49,107	—245,638	289,545
	12 mos.	880	29,538,642	2,555,789	34,316,348	6,849,066	4,416,846	699,851	8,275,723	21,291,353	62.0	13,024,995	7,139,828	4,729,810	4,083,546
Kansas, Oklahoma & Gulf	Dec.	328	347,733	1,588	352,633	26,640	20,720	11,962	81,028	153,674	43.6	198,959	122,000	94,602	23,577
	12 mos.	328	3,200,237	10,556	3,243,746	283,155	185,005	118,061	767,897	1,487,028	45.8	1,756,718	1,084,238	816,734	775,387
Lake Superior & Ishpeming	Dec.	156	33,201	230	35,234	29,101	44,096	668	38,095	125,930	357.4	—90,696	—100,000	—91,028	—98,347
	12 mos.	156	2,741,561	1,195	3,493,358	384,112	468,942	7,826	660,947	1,619,739	46.4	1,873,619	779,471	865,725	1,045,285
Lehigh & Hudson River	Dec.	96	257,290	787	259,045	31,597	30,225	3,979	77,532	151,462	58.5	107,853	71,883	42,392	59,787
	12 mos.	96	3,327,628	36,721	3,386,413	396,783	360,996	51,910	940,108	1,834,122	54.2	1,552,291	824,755	453,986	429,942
Lehigh & New England	Dec.	190	488,100	.....	491,473	36,046	112,400	6,465	142,069	320,583	65.2	170,890	140,923	158,506	80,387
	12 mos.	190	6,126,272	.....	6,163,392	485,805	1,258,702	86,321	1,744,865	3,789,948	61.5	2,373,444	1,307,977	1,475,561	1,388,190
Lehigh Valley	Dec.	1,260	6,099,661	455,828	6,948,346	588,882	1,132,547	105,691	2,516,229	4,536,807	65.3	2,411,539	1,849,592	1,485,991	472,311
	12 mos.	1,262	69,609,362	3,988,446	78,171,307	6,932,301	12,350,345	1,273,142	27,669,443	50,201,772	64.2	27,969,535	17,716,008	13,117,576	10,093,506
Louisiana & Arkansas	Dec.	854	1,434,259	111,603	1,607,247	1,359,614	172,737	37,010	376,055	2,022,192	125.8	—414,945	396,137	324,196	215,135
	12 mos.	875	14,167,234	936,149	15,696,549	4,547,935	1,754,955	381,535	3,527,655	10,809,654	68.9	4,886,895	3,289,850	2,475,312	2,433,816
Louisville & Nashville	Dec.	4,745	12,656,341	2,852,517	16,421,369	1,195,522	2,554,035	201,245	4,769,682	9,223,746	56.2	7,197,623	710,573	860,830	1,490,498
	12 mos.	4,777	136,689,523	23,288,244	168,824,550	14,411,426	28,019,504	2,324,376	49,311,350	99,028,658	58.7	69,795,892	21,425,303	23,732,085	25,548,223
Maine Central	Dec.	991	1,162,235	276,653	1,553,973	85,791	247,427	12,410	477,965	883,317	56.8	670,656	460,737	445,028	235,859
	12 mos.	991	13,716,747	2,452,415	17,405,965	2,219,711	3,110,802	150,286	5,745,722	11,766,405	67.6	5,639,560	3,330,242	3,039,819	2,702,482
Midland Valley	Dec.	351	124,309	44	126,850	6,440	11,685	2,805	43,920	70,855	55.9	55,995	46,493	35,115	11,611
	12 mos.	351	1,471,718	145	1,500,524	9,902	117,608	28,811	454,784	866,662	57.8	633,862	500,547	380,886	425,152
Minneapolis & St. Louis	Dec.	1,409	1,208,765	29,019	1,279,359	151,491	144,422	65,120	360,168	812,753	63.5	466,606	406,215	398,021	95,761
	12 mos.	1,409	12,778,125	303,042	13,552,988	1,973,467	1,895,643	701,020	4,159,806	9,306,683	68.7	4,246,305	3,533,975	3,129,233	1,468,929
Minneapolis, St. Paul & Sault Ste. Marie	Dec.	4,277	3,274,656	234,027	3,768,145	454,607	598,239	71,468	1,333,216	2,565,750	68.1	1,202,395	732,052	696,248	—412,208
	12 mos.	4,277	38,367,855	1,634,738	42,723,865	6,115,129	6,851,045	832,827	15,079,754	30,167,194	70.6	12,556,671	8,602,264	7,871,134	5,287,094
Duluth, South Shore & Atlantic	Dec.	550	258,667	34,332	313,685	39,462	41,124	9,135	126,384	222,541	70.9	91,144	71,431	69,936	—29,223
	12 mos.	550	3,758,721	194,101	4,230,689	701,747	610,902	100,044	1,477,071	2,972,068	70.3	1,258,621	1,033,782	946,969	627,466
Spokane International	Dec.	152	186,081	5,769	199,144	36,749	5,374	2,911	48,804	101,001	50.7	98,143	10,541	2,027	5,750
	12 mos.	152	1,586,721	24,261	1,701,197	272,736	94,104	32,826	398,720	859,848	50.5	841,349	467,518	381,784	197,702
Mississippi Central	Dec.	158	148,782	4,641	155,980	27,737	13,546	8,545	36,246	92,004	59.0	63,976	63,625	56,304	31,891
	12 mos.	158	1,571,495	58,660	1,650,656	292,604	176,439	99,162	367,124	993,594	60.2	657,062	490,276	397,262	187,420
Missouri & Arkansas	Dec.	365	163,794	4,877	175,831	75,899	20,871	7,874	65,836	177,873	101.2	—2,042	15,594	1,711	—16,910
	12 mos.	365	1,608,904	31,346	1,729,768	440,643	205,011	92,898	615,536	1,426,726	82.5	303,042	196,365	51,510	31,382
Missouri-Illinois	Dec.	172	278,711	430	281,402	30,002	20,630	3,771	62,788	124,127	44.1	157,275	28,158	24,745	26,918
	12 mos.	172	3,302,574	3,273	3,323,349	373,793	306,590	41,987	783,213	1,571,982	47.3	1,751,367	706,148	550,984	585,212
Missouri-Kansas-Texas Lines	Dec.	3,293	5,303,920	906,241	6,753,156	1,613,924	759,867	135,734	1,875,097	4,576,544	67.8	2,176,612	1,779,536	1,231,745	621,582
	12 mos.	3,293	46,429,612	7,951,420	58,626,219	10,858,505	8,332,386	1,450,878	17,271,544	39,990,824	68.2	18,635,395	14,569,497	10,471,483	3,969,685
Missouri Pacific	Dec.	7,110	13,292,718	2,691,562	17,249,595	1,834,874	2,022,074	297,531	5,004,773	9,642,191	55.9	7,607,404	4,918,036	3,958,066	2,035,876
	12 mos.	7,129	147,486,268	19,019,869	178,424,500	18,646,948	23,498,750	3,291,750	50,929,042	101,110,755	56.7	77,313,745	58,861,474	49,309,302	23,033,729
Gulf Coast Lines	Dec.	1,739	2,689,192	284,608	3,132,474	439,097	280,053	52,442	779,460	1,634,192	52.2	1,498,282	918,189	641,734	702,014
	12 mos.	1,764	27,979,553	2,062,502	31,313,786	3,757,321	3,079,545	583,493	8,010,297	16,277,014	52.0	15,036,772	11,470,535	8,920,952	4,159,081
International Great Northern	Dec.	1,155	1,576,992	393,081	2,199,946	176,750	300,635	32,661	640,026	1,236,095	56.2	963,851	903,672	812,688	118,904
	12 mos.	1,155	16,948,306	2,894,512	21,760,522	2,696,251	3,147,264	379,603	6,904,030	13,988,869	64.3	7,771,653	6,887,421	5,786,908	1,334,669
Monongahela	Dec.	171	506,504	1,368	510,256	44,046	44,609	703	136,401	229,526	45.0	280,730	159,785	71,175	165,666
	12 mos.	171	6,898,847	10,463	6,937,074	730,759	535,811	6,794	1,556,886	2,868,493	41.4	4,068,581	2,622,879	1,504,772	1,989,771

Table continued on next left-hand page

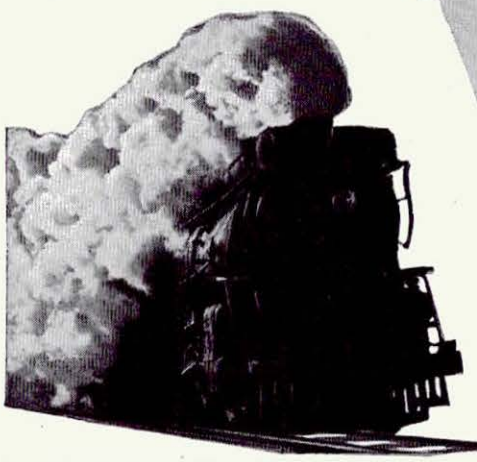
REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1942—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1942	Net railway operating income 1941
Montour	Dec.	51	$201,412	$.....	$202,837	$17,418	$53,468	$863	$61,289	$140,597	69.3	$62,240	$12,375	$50,744	$35,624
	12 mos.	51	2,698,680	.....	2,715,903	198,918	630,419	9,982	677,201	1,606,638	59.2	1,109,265	363,495	819,091	826,403
Nashville, Chattanooga & St. Louis	Dec.	1,090	2,490,220	591,497	3,301,532	248,400	446,762	76,306	892,119	1,754,752	53.1	1,546,780	666,343	586,749	345,747
	12 mos.	1,107	24,045,988	4,654,317	30,928,868	2,954,754	5,111,142	885,422	9,764,752	19,662,787	63.6	11,266,081	6,218,138	5,702,913	3,309,419
Nevada Northern	Dec.	165	55,143	1,010	58,753	8,231	2,826	807	9,009	26,423	45.0	32,330	13,928	16,772	9,460
	12 mos.	165	653,544	11,093	700,767	119,249	39,992	13,999	114,285	356,474	50.9	344,293	141,864	169,613	191,241
New York Central	Dec.	10,891	37,854,303	11,631,288	54,566,365	5,886,317	10,249,789	642,804	18,533,774	37,202,331	68.2	17,364,034	12,188,778	11,132,230	3,737,273
	12 mos.	10,939	428,254,134	112,259,031	593,666,096	68,547,071	109,096,315	7,143,584	197,544,216	402,669,598	67.8	190,996,498	108,106,394	90,399,495	57,418,760
Pittsburgh & Lake Erie	Dec.	233	2,582,437	105,139	2,778,649	270,185	920,413	40,676	760,319	2,090,021	75.2	688,628	805,257	1,303,962	854,456
	12 mos.	233	32,332,540	902,026	34,144,619	2,893,129	9,840,845	478,754	9,376,564	23,748,039	69.6	10,396,580	1,750,619	7,378,279	7,491,014
New York, Chicago & St. Louis	Dec.	1,688	8,015,942	223,251	8,386,045	509,336	903,976	135,563	2,394,545	4,096,704	48.9	4,289,341	661,556	206,845	2,141,764
	12 mos.	1,688	85,195,311	2,042,606	88,742,413	6,984,222	10,597,044	1,567,299	25,543,714	46,470,511	52.4	42,271,902	19,444,356	13,222,981	17,568,115
New York, New Haven & Hartford	Dec.	1,838	7,275,182	5,951,805	14,380,832	1,106,817	1,861,348	164,707	4,582,868	8,339,632	58.0	6,041,200	3,917,624	2,888,024	2,164,289
	12 mos.	1,841	88,609,804	55,657,622	156,140,193	15,464,253	20,657,894	1,644,170	48,172,808	92,716,342	59.4	63,423,851	41,168,675	30,012,844	16,924,935
New York Connecting	Dec.	21	204,618	.....	224,030	88,691	8,820	.....	49,021	148,161	66.1	75,869	—81,375	68,014	82,192
	12 mos.	21	2,686,981	.....	2,888,322	835,512	117,572	.....	495,207	1,467,160	50.8	1,421,162	587,978	1,690,031	2,806,114
New York, Ontario & Western	Dec.	547	500,824	13,799	559,910	62,544	122,481	19,372	313,883	543,826	97.1	16,084	3,479	—22,146	347
	12 mos.	547	6,401,154	495,866	7,441,395	866,567	1,443,490	237,991	3,607,537	6,412,102	86.2	1,029,293	683,342	200,030	—216,026
New York, Susquehanna & Western	Dec.	262	379,349	36,392	431,697	33,874	58,820	3,613	176,332	287,327	66.6	144,370	136,206	90,099	24,120
	12 mos.	262	3,775,242	426,018	4,430,670	349,155	402,266	38,001	1,597,305	2,541,352	57.2	1,889,318	1,435,924	916,410	657,851
Norfolk & Western	Dec.	2,156	10,295,731	1,274,422	12,005,021	1,067,194	2,075,913	165,024	2,627,478	6,226,117	51.9	5,778,904	1,823,198	2,515,449	2,040,574
	12 mos.	2,167	125,699,435	9,938,237	139,600,164	13,984,185	27,965,009	1,893,908	29,134,345	76,173,019	54.6	63,427,145	17,330,651	23,829,764	29,076,278
Norfolk Southern	Dec.	733	535,258	24,396	578,780	75,559	72,307	30,314	216,431	424,408	73.3	154,372	27,567	5,513	143,991
	12 mos.	733	7,378,388	240,172	7,879,771	1,231,136	839,879	341,856	2,441,898	5,164,291	65.5	2,715,480	1,561,804	1,196,204	849,318
Northern Pacific	Dec.	6,874	9,377,525	1,405,265	11,910,151	1,147,641	2,116,286	201,721	3,295,220	7,207,871	60.5	4,702,280	2,226,877	2,508,663	1,305,571
	12 mos.	6,884	100,819,969	9,237,380	119,310,556	14,988,083	21,494,530	2,122,380	34,040,269	77,229,103	64.7	42,081,453	23,161,664	27,463,103	19,922,776
Northwestern Pacific	Dec.	331	461,076	13,998	503,785	120,889	52,975	4,978	140,791	326,845	64.9	176,940	152,869	134,444	—93,183
	12 mos.	340	4,814,385	140,126	5,190,198	1,211,091	605,663	31,892	1,729,601	3,665,135	70.6	1,525,063	1,259,908	1,038,295	—200,340
Oklahoma City-Ada-Atoka	Dec.	132	122,937	35	124,442	18,125	11,922	1,423	37,884	75,022	60.3	49,420	33,719	14,389	7,584
	12 mos.	132	1,313,576	43	1,330,759	167,466	56,553	13,181	335,330	616,502	46.3	714,257	466,876	302,414	23,163
Pennsylvania	Dec.	10,174	48,235,017	18,516,467	72,725,442	5,991,697	11,691,882	1,062,015	28,736,110	49,776,794	68.4	22,948,648	15,480,058	14,295,332	8,813,370
	12 mos.	10,211	608,598,902	169,122,194	838,474,623	86,839,516	147,074,095	10,219,502	286,245,871	554,140,727	66.1	284,333,896	159,755,094	145,278,344	97,102,488
Long Island	Dec.	378	1,019,292	1,800,485	2,950,483	611,924	395,748	15,715	1,417,538	2,485,523	84.2	464,960	164,318	—27,324	—7,965
	12 mos.	378	11,613,854	21,761,287	34,966,725	5,668,730	5,117,687	294,538	14,590,014	26,296,765	75.2	8,669,960	4,278,837	2,002,737	767,881
Pennsylvania-Reading Seashore Lines	Dec.	403	471,262	203,711	701,715	134,517	67,128	8,120	366,683	597,491	85.1	104,224	38,177	—38,468	—162,702
	12 mos.	405	5,331,134	3,692,174	9,390,227	1,282,730	1,126,680	106,798	4,543,545	7,287,141	77.6	2,103,086	1,056,612	—204,517	—990,589
Pere Marquette	Dec.	2,032	4,098,408	233,209	4,513,840	782,920	798,452	69,007	1,471,830	3,234,253	71.7	1,279,587	794,857	698,658	371,488
	12 mos.	2,052	40,096,595	2,125,625	44,311,307	6,122,269	8,828,874	825,163	15,388,007	32,544,485	73.4	11,766,822	6,947,751	6,275,279	6,115,395
Pittsburg & Shawmut	Dec.	97	104,745	.....	105,478	14,567	19,398	2,021	26,878	68,352	64.8	37,126	32,681	31,675	22,385
	12 mos.	97	1,234,851	.....	1,242,044	216,166	222,666	25,165	316,937	842,840	67.9	399,204	359,817	329,087	242,650
Pittsburgh & West Virginia	Dec.	136	553,469	.....	573,816	41,582	111,733	20,149	142,091	340,459	59.3	233,357	161,852	170,359	172,704
	12 mos.	136	6,236,461	407	6,460,198	948,215	1,238,221	233,529	1,462,716	4,176,188	64.6	2,284,010	1,718,402	1,787,586	1,654,399
Pittsburg, Shawmut & Northern	Dec.	190	111,818	.....	113,013	15,853	25,222	1,164	41,388	89,345	79.1	23,668	19,803	13,566	11,139
	12 mos.	190	1,450,053	.....	1,466,642	253,727	343,961	13,583	513,079	1,192,119	81.3	274,523	195,715	106,593	282,931
Reading	Dec.	1,420	7,913,363	733,718	9,074,427	660,394	1,816,990	76,959	2,974,563	5,706,881	62.9	3,367,546	2,140,767	2,065,142	1,237,192
	12 mos.	1,425	90,740,303	7,291,197	102,683,717	8,252,157	19,634,400	891,862	33,147,391	63,990,872	62.3	38,692,845	23,651,857	21,721,740	16,152,539
Richmond, Fredericksburg & Potomac	Dec.	118	1,401,513	1,241,606	2,988,495	132,482	234,551	15,127	680,156	1,140,698	38.2	1,847,797	1,374,116	1,192,372	383,515
	12 mos.	118	15,086,050	10,734,708	28,117,740	1,566,137	2,426,320	135,715	6,761,339	11,782,293	41.9	16,335,447	5,561,662	4,008,903	2,618,024
Rutland	Dec.	407	211,174	57,831	342,061	24,995	66,584	12,397	172,373	289,789	84.7	52,272	27,048	34,026	34,522
	12 mos.	407	2,958,634	567,106	4,287,847	474,576	792,081	129,175	1,946,135	3,484,317	81.3	803,530	553,241	595,350	267,307
St. Louis-San Francisco	Dec.	4,671	5,966,012	1,699,442	8,450,569	462,218	1,368,176	142,466	2,733,796	5,002,986	59.2	3,447,583	3,228,531	3,155,203	439,292
	12 mos.	4,720	66,261,904	13,190,035	85,577,649	7,885,773	14,995,780	1,633,898	27,215,711	54,754,076	64.0	30,823,573	25,983,582	25,874,296	11,997,351
St. Louis, San Francisco & Texas	Dec.	159	377,594	11,935	401,243	30,103	24,749	9,928	94,807	365,930	41.4	235,313	—92,896	—120,718	—26,542
	12 mos.	159	3,264,432	120,201	3,465,194	328,363	277,013	110,736	971,953	1,760,112	50.8	1,705,082	1,240,462	923,696	128,046

Table continued on next left-hand page

U. S. LOCOMOTIVES RIDING THE SHIP BRIDGE ABROAD



A stream of "invasion" locomotives — made in U. S. A. — is constantly moving across the ship bridge to our Allies abroad.

For 69 years, locomotive builders have used

N•B•M BRONZE

Driving Box Bearings • Hub Plates • Shoes and Wedges • Rod Bushings • Crosshead Gibs • Engine and Truck Bearings • Valve Motion Parts.

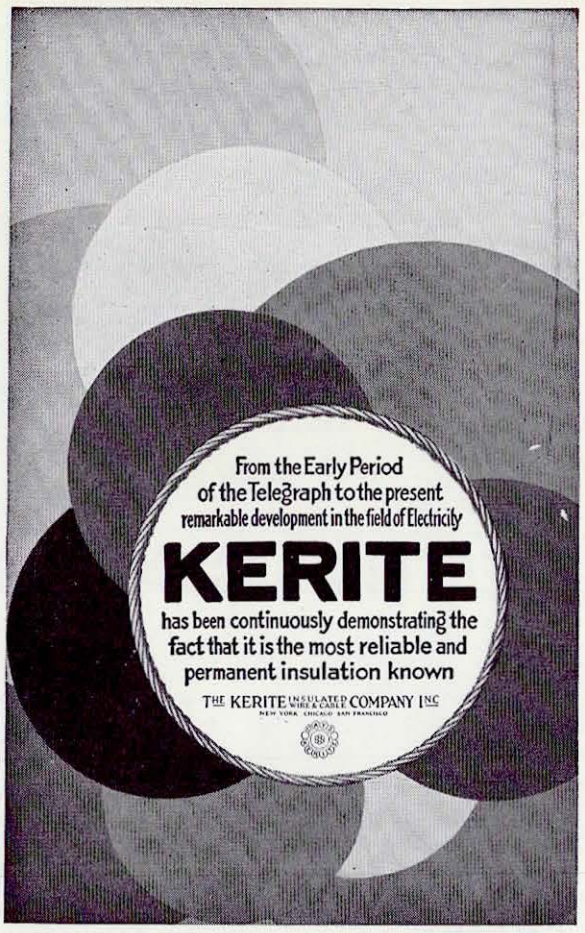
NATIONAL BEARING METALS CORPORATION

ST. LOUIS • NEW YORK

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1942—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1942	Net railway operating income 1941
St. Louis Southwestern Lines	Dec.	1,617	5,043,434	355,221	5,528,755	315,232	365,297	103,881	1,114,348	2,033,844	36.8	3,494,911	959,228	670,354	1,400,618
	12 mos.	1,617	45,192,481	2,306,578	48,714,197	4,107,600	4,734,965	1,163,140	12,066,426	23,314,307	47.9	25,399,890	12,109,933	8,615,365	7,495,071
Seaboard Air Line	Dec.	4,184	7,748,924	3,002,095	11,599,909	1,325,344	2,265,619	233,809	3,369,062	7,613,526	65.6	3,986,383	3,566,650	3,067,619	1,188,550
	12 mos.	4,257	76,350,934	27,169,323	10,242,375	11,028,862	17,142,280	2,465,181	32,187,487	67,010,358	60.8	43,232,017	34,512,284	30,383,971	10,106,964
Southern Railway	Dec.	6,514	13,819,464	4,340,949	19,414,559	1,131,632	2,565,416	201,374	5,103,387	9,576,483	49.3	9,838,076	8,036,498	7,690,300	3,254,989
	12 mos.	6,519	156,635,034	36,265,338	204,605,581	19,662,842	30,869,516	2,305,909	54,817,747	113,746,737	55.6	90,858,844	49,370,449	46,265,818	32,789,981
Alabama Great Southern	Dec.	315	1,373,689	343,094	1,821,449	68,187	242,801	23,796	525,052	906,715	49.8	914,734	564,581	481,625	164,192
	12 mos.	315	15,801,906	3,014,694	19,749,292	1,287,008	2,745,622	263,130	5,118,154	9,904,714	50.2	9,844,578	3,204,971	2,409,124	2,331,666
Cincinnati, New Orleans & Texas Pacific	Dec.	337	2,207,962	641,745	3,004,735	Cr. 50,242	482,920	34,300	690,911	1,242,105	41.3	1,762,630	767 607	703,613	406,928
	12 mos.	337	25,167,950	4,206,668	30,697,673	2,409,691	5,585,953	385,423	7,050,221	16,291,054	53.1	14,406,619	5,509,909	5,222,964	5,958,047
Georgia Southern & Florida	Dec.	397	271,864	206,206	535,881	17,466	51,274	2,249	171,241	256,147	47.8	279,734	175,134	139,630	53,501
	12 mos.	398	3,328,760	1,472,633	5,202,725	660,357	625,450	29,988	1,605,518	3,066,197	58.9	2,136,528	1,321 669	995,800	524,290
New Orleans & Northeastern	Dec.	204	913,355	140,248	1,108,336	21,834	112,115	12,152	281,770	457,035	41.2	651,301	244,769	158,937	154,001
	12 mos.	204	9,629,097	1,707,525	11,851,397	793,206	950,818	138,616	2,812,222	5,006,368	42.2	6,845,029	2,433,616	1,413,966	1,426,799
Southern Pacific	Dec.	8,350	28,639,534	7,195,484	39,106,557	2,605,755	5,159,475	516,010	10,798,922	20,850,866	53.3	18,255,691	11,706,087	9,696,065	1,552,192
	12 mos.	8,474	284,215,505	58,354.530	370,469,054	29,112,864	56,803,306	5,145,532	111,577,260	220,192,351	59.4	150,276,703	92,544,663	76,932,583	44,436 280
Southern Pacific Steamship Lines	Dec.	.....	420	Dr. 47	373	.....	.....	.....	1,290	1,911	512.3	—1,538	—1,599	—1,599	—11,379
	12 mos.	.....	1,002	85	4,079	79,136	12	268	Cr. 733	104,520	In excess of 999	—100,441	—103,117	—103,117	19,574
Texas & New Orleans	Dec.	4,341	8,637,095	1,751,108	11,090,989	939,716	995,697	144,532	2,610,820	5,012,904	45.2	6,078,085	3 995,935	3,465,370	1,188,186
	12 mos.	4,387	82,707,750	13,880,491	102,275,682	10,678,846	11,180,640	1,673,122	25,421,034	52,325,802	51.2	49,949,880	30,839,600	25,672,343	12,981,447
Spokane, Portland & Seattle	Dec.	930	1,307,129	111,649	1,561,045	233,274	118,297	13,150	532,516	949,599	60.8	611,446	529,516	348,225	228,082
	12 mos.	933	17,511,531	862,569	19,540,611	2,065,459	1,482,501	143,220	5,585,663	9,801,760	50.2	9,738,851	8,588 985	6,851,890	3,030,159
Tennessee Central	Dec.	286	280,264	24,447	323,632	67,231	54,886	6,846	115,579	262,625	81.1	61,007	48,418	32,438	25,088
	12 mos.	286	3,581,372	187,386	3,987,281	845,804	593,828	79,631	1,296,287	2,977,598	74.7	1,009,683	669,360	489,323	402,350
Texas & Pacific	Dec.	1,903	3,363,406	1,613,564	5,511,134	718,114	654,575	98,420	1,292,828	2,986,467	54.2	2,524,667	1,502,289	1,498 384	766,475
	12 mos.	1,896	36,134,948	11.263,294	51,764,233	5,458,932	7,592,421	1,040,887	13,338,418	29,633,298	57.2	22,130,935	13,530,899	12,401,106	6,938,074
Texas Mexican	Dec.	162	131,383	733	154,877	35,428	14,794	4,099	50,157	118,643	76.6	36,234	22,862	18,092	—10,363
	12 mos.	162	1,461,220	6,852	1,721,976	278,755	166,181	46,371	491,324	1,086,705	63.1	635,271	540,419	455,429	304,385
Toledo, Peoria & Western	Dec.	239	353,263	5	356,354	32,336	21,097	21,446	73,454	160,060	44.9	196,294	181,871	163,717	73,319
	12 mos.	239	3,188,848	99	3,230,356	463,541	214,468	235,795	777,055	1,842,009	57.0	1,388,347	1,224,381	1,033,024	457,605
Union Pacific System	Dec.	9,837	31,817,928	5,689,606	40,728,559	3,771,351	6,727,622	482,959	9,822,734	22,193,278	54.5	18,535,281	11,860,796	10,626,851	5,987,133
	12 mos.	9,855	282,241,763	45,793,903	353,064,543	45,570,296	59,889,098	5,148,257	94,219,700	219,039,130	62.0	134,025,413	72,281,269	61,024,720	30,535,373
Utah	Dec.	111	135,081	.....	135,098	Cr. 1,931	34,003	397	34,076	70,954	52.5	64,144	32,873	42,834	20,606
	12 mos.	111	1,361,070	.....	1,361,801	175,670	419,123	5,682	348,537	1,000,772	73.5	361,029	189,216	198 405	78,752
Virginian	Dec.	659	2,003,738	8,411	2,095,693	141,596	463,009	23,711	382,144	1,055,029	50.3	1,040,664	440,664	569,947	988,950
	12 mos.	657	25,467,446	75,326	26,523,147	2,190,168	5,591,158	299,753	4,665,618	13,296,410	50.1	13,226,737	6,569,237	7,369,757	8,788,896
Wabash	Dec.	2,393	5,987,057	805,183	7,267,120	771,542	625,874	171,805	2,317,184	4,123,347	56.7	3 143,773	2,824,785	2,251,674	62,357
	12 mos.	2,395	68,449,908	6,163,206	78,898,484	8,221,285	9,401,440	1,933,290	25,005,541	47,037,382	59.6	31,861,102	16,899,802	11,051,645	9,114,649
Ann Arbor	Dec.	294	430,364	7,964	448,643	43,328	37,716	19,898	178,500	297,248	66.3	151,395	135,009	130,208	58,122
	12 mos.	294	4,939,124	53,617	5,144,153	504,619	911,015	186,102	2,075,714	3,841,431	74.7	1,302,722	739,021	599,894	662,367
Western Maryland	Dec.	848	2,565,888	27,404	2,719,864	266,229	532,846	40,792	745,794	1,659,166	61.0	1 060,698	753,899	797,337	379,388
	12 mos.	856	29,432,952	224,465	30,639,650	3,292,538	6,488,834	528,615	8,019,860	19,156,610	62.5	11,483,040	7,082,241	7,311,848	5,795,020
Western Pacific	Dec.	1,195	3,353,083	384,755	3,962,744	1,052,196	538,462	74,018	1,004,940	2,788,310	70.4	1,174,434	—392,877	—567,311	—18,224
	12 mos.	1,195	34,976,197	2,390,919	38,537,321	4,113,989	4,855,490	903,352	11,512,296	22,427,437	58.2	16,109,884	10,923,805	9 108,052	4,223,986
Wheeling & Lake Erie	Dec.	507	2,024,904	.....	2,074,983	159,551	333,167	40,236	556,191	1,146,285	55.2	928,698	457,606	651,782	271,520
	12 mos.	507	23,100,823	25	24,241,702	2,805,310	4,004,714	489,541	6,754,030	14,574,185	60.1	9,667,517	1,958,964	3.781.160	3,972,442


From the Early Period
of the Telegraph to the present
remarkable development in the field of Electricity
KERITE
has been continuously demonstrating the
fact that it is the most reliable and
permanent insulation known
THE KERITE INSULATED WIRE & CABLE COMPANY INC
NEW YORK CHICAGO SAN FRANCISCO

KING SANDER TRAP Nº 34

Provision for automatic cleaning blast embodied within the trap. Adjustable for grade of sand, flow required and air pressure.

Single, Duplex and Triplex operating valves to suit varying arrangements.

THE U. S. METALLIC PACKING CO.
PHILADELPHIA, PENNSYLVANIA

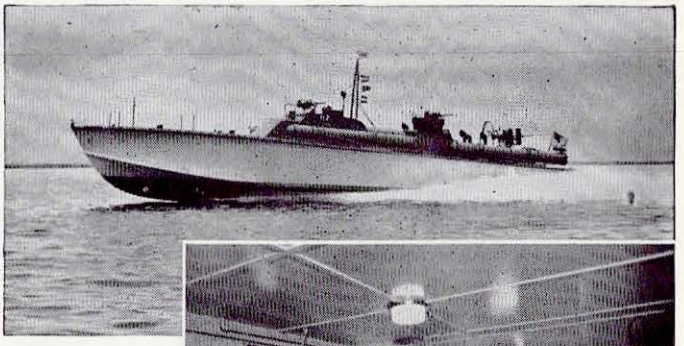
Representatives in Canada
Jos. Robb & Co., Ltd., Montreal

Four outstanding boats built by Chris-Craft with exterior-type fir plywood: *(from left)* U. S. Army Q boat, U. S. Army Aircraft Rescue boat, U. S. Navy Picket boat, U. S. Navy Troop Landing boat.

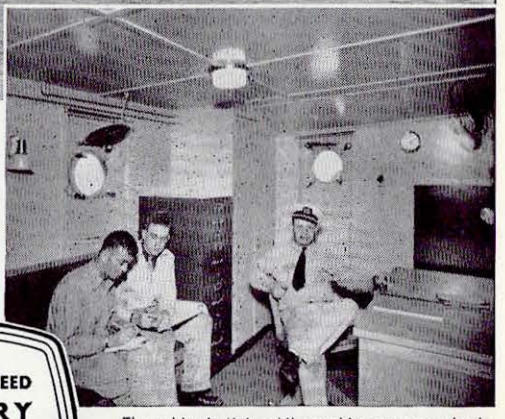
BOATS...

are one of Douglas Fir Plywood's most interesting War uses!

●Exterior-type Douglas Fir Plywood is serving in all kinds of Army and Navy boats and in Liberty ships because it is so easy to fabricate . . . so lightweight . . . so resistant to damage yet, if damaged, so simple to repair . . . Remember, the many war jobs Douglas Fir Plywood is doing *now* will make this miracle wood far more useful to you *after Victory!*



Thousands of square feet of exterior-type Douglas Fir Plywood go into the hulls of the Navy's sturdy, lightning-fast PT boats. Constructed by Elco Naval Division.



The cabins in Kaiser Liberty ships are snug, thanks to walls and ceilings of Douglas Fir Plywood.

TO HELP SPEED VICTORY the Douglas Fir Plywood Industry is devoting its entire capacity to war production. We know this program has your approval.

SEND FOR NEW WAR USE FOLDER

Dozens of photographs show many of the war jobs Douglas Fir Plywood is doing all over the world. You'll find it extremely interesting. It's free, of course. Douglas Fir Plywood Association, Tacoma, Washington.

DOUGLAS FIR PLYWOOD

Real Lumber

MADE LARGER, LIGHTER
SPLIT-PROOF
STRONGER

GET TOGETHER DEPARTMENT

RAILROAD EDUCATIONAL SERVICE

For 45 years the Railroad Department — International Correspondence Schools—has been training ambitious railroad men the technique of their work. Nearly 300 railroads have agreements with the International Correspondence Schools to instruct their employees who are interested in technical training at reduced rates.

Courses in:
Railroad Apprentice Training
Air Brakes
Locomotive Firemen
Locomotive Engineer
Car and Locomotive Shop Work
Traffic Management
General Transportation
Accounting—Rate Clerk
Maintenance of Way
Transportation Salesmanship
Signal Work
Telephony and Telegraphy

We Specialize in Railroad Apprentice Technical Training Courses Covering the Work Done by Each Craft.

Free Booklet on Request

INTERNATIONAL CORRESPONDENCE SCHOOLS

Railroad Department,
A. C. Drynan, Gen. Mgr.,
Box 8816 SCRANTON, PA.

REPRESENTATION

Well established St. Louis supply firm with wide acquaintance among purchasing, mechanical, and shop departments of St. Louis Railroads, desires to handle one or two additional accounts for well established manufacturer. Best references. Address Box 599, Railway Age, 30 Church St., New York, New York.

POSITION WANTED

As sales manager or representative of Eastern manufacturer of railway equipment and materials. 15 years technical selling experience to western railroads. Enjoy close connection with Engineering Dept., P. A., Arch. Foremen, etc., and can produce satisfactory business on approved materials. Age 39; married: 2 children. Address Box 602, Railway Age, 105 West Adams Street, Chicago, Illinois.

POSITION OPEN

Manufacturer in an essential industry has sales openings in Chicago and New York. Products vital to operation of signal systems. Prefer men with sales engineering experience under 45, married and with children. Submit application and photograph. Address Box 601, RAILWAY AGE, 30 Church St., New York, N. Y.

FOR SALE

1—16x24" American 0-4-0 saddle tank locomotive.

1—20x26" American 0-6-0 switcher with separate tender.

2—21x26" American 0-6-0 saddle tank locomotives. Superheated.

20—40-ton cap. flat cars, 36' 10" long. Fishbelly center sills, steel end and side sills.

2—25 x 28 American 4-6-2 Road Engines; excellent condition.

WRITE WIRE PHONE

THOMAS F. CAREY CO., INC.
120 Liberty Street
New York, N. Y.
Telephone Barclay 7-1770

ELECTRIC LOCOMOTIVES

600 Series

Immediate Delivery

4—SERIES 600

Road Locomotives, 600 volt, A. C.—D.C. Westinghouse, 38" driver wheels, weight on drivers —50 tons.

5—SERIES 700

Road Locomotives, 600 volt, A. C.—D.C. Westinghouse, 50" driver wheels, weight on drivers —73.6 tons.

DULIEN STEEL PRODUCTS INC.
414 First Ave. South—Seattle, Wash.
Affiliate offices in: Portland, Los Angeles, San Francisco, Butte, New York, New Orleans

EDUCATIONAL

Educational Services for RAILROAD MEN

Maintenance of Way—
Mechanical—
Signal—
Operating—
Engineers and Firemen—
All Supervisors—

The Railway Educational Bureau
Omaha, Nebraska

W A N T E D !
16, 20, 24 or 30 cubic yard
A I R D U M P C A R S
Any quantity, type, make or location. Also 10 to 30-ton Gas or Diesel Locos.

IRON & STEEL PRODUCTS, INC.
38 years' experience
13486 S. Brainard Ave.,
Chicago, Illinois
"ANYTHING containing IRON or STEEL"

Use Space Here

FOR SALE

RAILROAD SCALES, CRANES, ETC.
One BUDA 80 ton railroad scale, 46 ft.; one Fairbanks-Morse type E 150 ton railroad scale, 50 ft.; one 15 ton Brownhoist locomotive crane. Also several overhead electric traveling cranes; railroad steam locomotives; relaying rails; spikes and bolts. Write for complete information.

SONKEN-GALAMBA CORP.
108 N. 2d St., Kansas City, Kans.

WANT TO PURCHASE

4 inch O. D. boiler tubes; steel pipe of all sizes, Valves; Fittings; Industrial plants; mills; railroads; trackage; etc.

WRITE, WIRE OR PHONE

SONKEN-GALAMBA CORP.
108 N. 2d St. Kansas City, Kans.
We buy and sell.
Get our quotations.

POSITION OPEN

Service Engineers for Rail Supply Company; electrical experience essential. Training program will provide experience in company's equipment. Excellent opportunities including sales. Give full details past experience. Address Box 600, RAILWAY AGE, 30 Church St., New York, N. Y.

FOR SALE
USED RAILWAY EQUIPMENT

77 HOPPER COAL CARS
23 LOW SIDE GONDOLAS
7 LOCOMOTIVES

Bids conforming to instructions must be received by the undersigned not later than 5:00 p. m., February 20, 1943. Instructions to bidders will be supplied upon request.

F. X. Soete, Purchasing, New York, Ontario and Western Railway Company (Frederic E. Lyford, Trustee) Middletown, N.Y.

PROFESSIONAL DIRECTORY

Robert W. Hunt Company
ENGINEERS
Inspection—Tests—Consultation
All Railway Equipment
Structures and Materials
General Office:
175 W. Jackson Boulevard
CHICAGO
New York - Pittsburgh - St. Louis

Your Professional Card should appear here.

Our Name on ALL
of your Purchasing Department's
Inquiry Lists for

FREIGHT CAR PARTS

MAY—
Insure Necessary Deliveries
Reduce Purchase & Maintenance Costs
Noticeably.

Some items actually available for immediate shipment:

2800 6 x 8 x 6 "D" Couplers

JOURNAL BOXES

3000 6 x 11, Andrews or Arch-Bar
2500 5 x 9, Andrews or Arch-Bar
2400 5 x 9, Vulcan
500 4¼ x 8, Vulcan
4700 5 x 9, Journal Box Wedges
100 5½ x 10, Journal Wedges, Drop Forged
500 Draft Springs, 7¾ x 9½, D.C. (New)
300 Bolsters, Cast Steel. Box Type.

TRUCK SIDE FRAMES

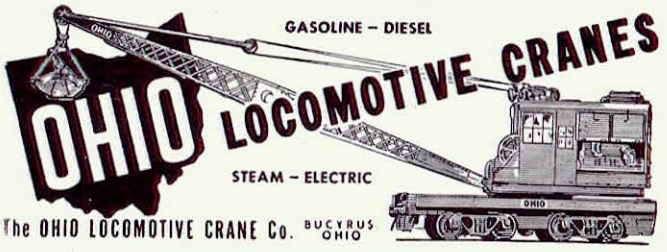
425 5¼ x 10, Andrews
238 5½ x 10, Vulcan
39 5 x 9, Andrews
224 4¼ x 8, Vulcan

Also Bettendorf Company's final inventory of New Truck Frames—Bolsters—Center Sill Ends—Fillers—Plate Supports —Draft Lugs—Box Lids—Spring Planks, both formed and not formed—also their Spring Plank Dies.

Request our Stock Lists

WHAT HAVE YOU TO SELL OR TRADE FOR?

IRON & STEEL PRODUCTS, INC.
38 Years' Experience
13486 S. Brainard Ave. Chicago, Illinois
"ANYTHING containing IRON or STEEL"



Pittsburgh Spring & Steel Co.
1417 Farmers Bank Building, Pittsburgh, Pa.
Makers of Elliptic and Spiral **SPRINGS** of Every Description
Carbon, Vanadium, Silico-Manganese Steels
Licensed manufacturers under patents for "Coil-Elliptic" groupings
Washington, D. C. 824 Union Trust Bldg. | New York 3723 Grand Central Terminal | Chicago 1401 Fisher Bldg.

GOLD
VAPOR-STEAM-ELECTRIC
CAR HEATING
SPECIALTIES
GOLD CAR HEATING & LIGHTING CO.
NEW YORK

DANDUX QUALITY CANVAS
Finer materials . . . Top Quality standards . . . Enviable "Dandux" reputation extending over a quarter century . . . these spell in war as in peace, longer life and greater service.
Regardless of your canvas requirements, Dandux Products will serve you better!
C. R. DANIELS, INC.
Manufacturers of Everything of Canvas
44 WEST ST. • NEW YORK, N. Y.
Newark, Boston, Chicago, Cleveland, Detroit, Buffalo, Philadelphia, Pittsburgh, Los Angeles, Dallas, Texas, Cincinnati, Cotton Duck Mills: Daniels, Md., Offices in other Cities.

Have You Changed Your Address?

Notice of change of address of subscribers should reach the office of *Railway Age*, 30 Church St., New York, ten days in advance to insure delivery of the following issue to new address. In sending notification of change always include the old address as well as the new.

Name .....

Old Address .....

New Address .....

Position ..... **Company** .....

THE STEAM LOCOMOTIVE

By Ralph P. Johnson, M. E.
Chief Engineer, The Baldwin Locomotive Works

This authoritative treatise on the theory, operation and economics of the modern steam locomotive presents the results of recent research and current practice. Comparisons are drawn with Diesel-electric and other types of motive power.

The material has been stripped down to fundamentals, with just enough background included to indicate the paths of development. Tables have been carefully checked against latest available data.

This book will be of particular interest to locomotive designers, superintendents of motive power, shop superintendents, master mechanics and engineers concerned with motive power. Members of railroad executive committees and bankers specializing in railroad securities will find the chapters on locomotive economics of special value. Students of mechanical engineering can use the book as a sound text on modern locomotive practice.

550 pages, 100 drawings and photographs, tables, 6x9, cloth, $3.50

SENT ON 10 DAYS' APPROVAL

Simmons-Boardman Publishing Corporation
30 Church Street, New York, N. Y.

Please send me a copy of JOHNSON'S new book, THE STEAM LOCOMOTIVE, on 10 days' free examination. If I wish to keep it I will remit the list price of $3.50. Otherwise I will return the book postpaid.

Name .....
Address .....
City ..... State .....
Company ..... Position .....
R. A. 2-13-43

Index to Advertisers

February 13, 1943

A

American Arch Company, Inc. 30
American Locomotive Company 7, 31a
American Steel Foundries 19
Association of Manufacturers of Chilled Car Wheels..... 2

B

Baldwin Locomotive Works, Inc. 16, 17
Barco Manufacturing Company 8
Bethlehem Steel Company 3
Buda Co., The 10

C

Carey Co., Inc., Thomas F. 38
Chase & Company, L. C. 11
Classified Advertisements 38
Crane Co. 31b

D

Daniels, Inc., C. R. 39
Douglas Fir Plywood Association 37
Dulien Steel Products, Inc. 38

E

Electro-Motive Division, General Motors Corp. 34, 35

F

Franklin Railway Supply Company, Inc. 27

G

General Electric Company 7
General Railway Signal Company ..... Back Cover
General Steel Castings Corp. 4, 5
Get Together Department 38
Gold Car Heating & Lighting Co. 39

H

Harbison-Walker Refractories Co. 30
Haskelite Manufacturing Corporation 18
Hunt-Spiller Mfg. Corporation 32
Hunt Co., Robert W. 38

I

Industrial Brownhoist Corp. 9
International Correspondence Schools 38
Iron & Steel Products, Inc. 38, 39

K

Kerite Insulated Wire & Cable Co., Inc., The..... 37

L

Lima Locomotive Works, Inc. 28, 29

N

National Bearing Metals Corporation 33a
National Malleable and Steel Castings Co. 12

O

Ohio Locomotive Crane Co., The..... 39
Okonite Company, The..... 26
Oliver Iron & Steel Corporation..... 14
Oxweld Railroad Service Company, The..... 15

P

Pittsburgh Spring & Steel Co. 39
Pullman-Standard Car Manufacturing Co. 21

R

Railway Educational Bureau, The 38

S

Schaefer Equipment Company 33
Simmons-Boardman Publishing Corporation 39
Sonken-Galamba Corp. 38
Standard Car Truck Co. 35a
Superheater Co., The 31
Symington-Gould Corporation, The 45

T

Teletype Corporation 6
Timken Roller Bearing Co., The..... Front Cover
Timken-Detroit Axle Company, The 13

U

Union Carbide and Carbon Corporation 15
Union Switch & Signal Company 24
U. S. Metallic Packing Co., The 37

W

Weir Kilby Corporation 20
Western Electric Company 6
Westinghouse Air Brake Co. 22

BETTER PERFORMANCE, LONGER LIFE WITH SBS SNUBBERS

Here's an economical way of increasing freight car hours in service. Improve all-coil spring groups by replacing one A.A.R. spring with a Symington SBS Snubber. This method:

- Eliminates Destructive Car Bounce.
- Prevents Solid Blows.
- Reduces Coil Spring Breakage.
- Keeps Cars Off Repair Track.
- Lowers Track Maintenance.

Present restrictions on the use of rubber have made necessary the withdrawal from the market, for the emergency, of our type SBR Snubber.

The type SBS Snubber which we are now furnishing operates on the same basic principle, the rubber block being replaced by transverse coil springs which force the friction shoes against the inner wall of the snubber sleeve, producing constant frictional control.

The SBS Snubber was developed early in 1940 and its durability and efficiency in controlling truck spring action have been proved by laboratory and road tests and in actual service for more than two years.

THE SYMINGTON-GOULD CORPORATION

Works: ROCHESTER & DEPEW, NEW YORK

New York Chicago St. Louis Baltimore Boston San Francisco

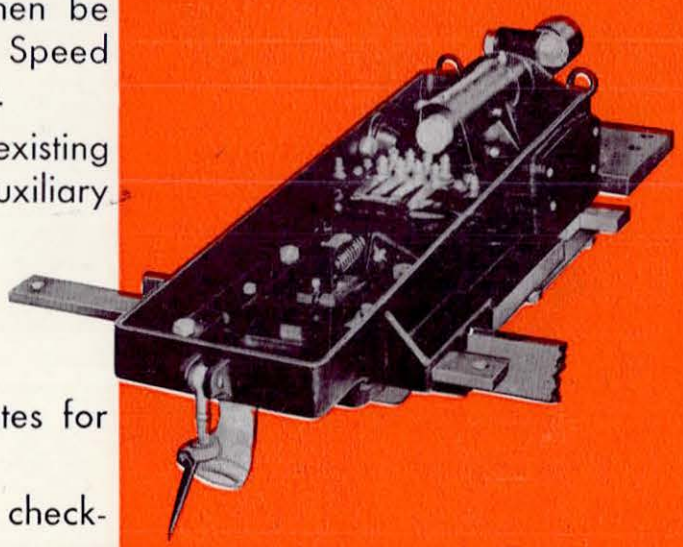
In Canada: ADANAC SUPPLIES, LTD., Montreal, Que.

IMPROVE TRAIN OPERATION

G-R-S Type A Facing Point Locks Speed Train Movements Over Spring Switches

To eliminate stops and raise the average speed of trains, install a spring switch at each end of a busy passing siding. Have one end normally set for the main, and the other normally set for the siding. **Protect these switches with G-R-S facing point locks.** Through moves can then be made without delay by opposing trains. Speed is governed by the length of the turn-out.

Or—you can add this protection to any existing spring switch location. Regardless of the auxiliary equipment or the location, the Type A is adaptable.



Facing point moves are fully protected with the switch normal. The switch automatically unlocks and operates for reverse trailing moves.

Signal control contacts are provided for checking the position of points and lock.

You may have a location in mind. Let us prove our point by improving your train operation.

Consult our nearest District Office.

GENERAL RAILWAY SIGNAL COMPANY

New York Chicago ROCHESTER, N. Y. St. Louis

A-1682